

▼ Riverside Literature Series ▼

QH
81
B972N

UNIVERSITY OF CALIFORNIA, SAN DIEGO



3 1822 00740 8586

A
A
0
0
0
8
6
9
1
3
0
5



UC SOUTHERN REGIONAL LIBRARY FACILITY

BURROUGHS'S
Nature Near Home
and Other Papers

Houghton Mifflin Co.

LIBRARY

UNIVERSITY OF
CALIFORNIA
SAN DIEGO

Central University Library

University of California, San Diego

Note: This item is subject to recall after two weeks.

Date Due

MAR 04 1992

FEB 25 1992

UNIVERSITY OF CALIFORNIA, SAN DIEGO



3 1822 00740 8586

QH

81

B972m

The Riverside Literature Series

NATURE NEAR HOME AND OTHER PAPERS

BY

JOHN BURROUGHS



HOUGHTON MIFFLIN COMPANY

BOSTON NEW YORK CHICAGO SAN FRANCISCO

The Riverside Press Cambridge

CONTENTS

NATURE LORE	1
NEW GLEANINGS IN OLD FIELDS	
I. Live Natural History	27
II. The Barn Swallow	32
III. Insects	35
IV. The Dog	39
V. Wood Waifs	40
VI. An Interesting Plant	44
VII. Nature Near Home	47
EACH AFTER ITS KIND	52
NATURE LEAVES	
I. In Warbler Time	68
II. A Short Walk	72
IN FIELD AND WOOD	
I. Intensive Observation	74
II. From a Walker's Wallet	84

COPYRIGHT 1913, 1916, 1919 BY JOHN BURROUGHS

ALL RIGHTS RESERVED

The Riverside Press
CAMBRIDGE, MASSACHUSETTS
PRINTED IN THE U. S. A.

NATURE LORE

EMERSON in his Journal says, "All facts in nature interest us because they are deep and not accidental." Facts of nature are undoubtedly of interest to most persons, though whether or not Emerson gives the true reason may be questioned. I would sooner venture the explanation that it is because nature is a sort of outlying province of ourselves. We feel a kinship with her works, and in bird and beast, in tree and flower, we behold the workings of the same life principle that has brought us where we are and relates us to all living things.

Explain the matter as we may, the facts and doings of nature interest us, and our interest is bound to grow as we enlarge our acquaintance with them, — which is about like saying that our interest keeps pace with our interest. But so it is. Water does not taste good to us until we are thirsty. Before we ask questions we must have questions to ask, and before we have questions to ask we must feel an awakened interest or curiosity. Action and reaction go hand in hand; interest begets interest; knowledge breeds knowledge. Once started in pursuit of nature lore, we are pretty sure to keep on. When people ask me, "How shall we teach our children to love

NATURE LORE

nature?" I reply: "Do not try to teach them at all. Just turn them loose in the country and trust to luck." It is time enough to answer children's questions when they are interested enough to ask them. Knowledge without love does not stick; but if love comes first, knowledge is pretty sure to follow. I do not know how I first got my own love for nature, but I suppose it was because I was born and passed my youth on the farm, and reacted spontaneously to the natural objects about me. I felt a certain privacy and kinship with the woods and fields and streams long before the naturalist awoke to self-consciousness within me. A feeling of companionship with Nature came long prior to any conscious desire for accurate and specific knowledge about her works. I loved the flowers and the wild creatures, as most healthy children do, long before I knew there was such a study as botany or natural history. And when I take a walk now, thoughts of natural history play only a secondary part; I suspect it is more to bathe the spirit in natural influences than to store the mind with natural facts. I think I know what Emerson means when he says elsewhere in his *Journal* that a walk in the woods is one of the secrets for dodging old age. I understand what the poet meant when he sang: —

"Sweet is the lore which Nature brings."

Nature lore — that is it. Not so much a notebook

NATURE LORE

full of notes of birds and trees and flowers as a heart warmed and refreshed by sympathetic intercourse and contact with these primal forces. When "the press of one's foot to the earth springs a hundred affections," as Whitman says, then one gets something more precious than exact science. Nature lore is a mixture of love and knowledge, and it comes more by way of the heart than of the head. We absorb it with the air we breathe; it awaits us at the side of the spring when we stoop to drink; it drops upon us from the trees beneath which we fondly linger; it is written large on the rocks and ledges where as boys we prowled about on Sundays, putting our hands in the niches or on the rocky shelves older than Thebes or Karnak, touching carefully the phoebe's mossy nest, with its pearl-white eggs, or noting the spoor of coon or fox, or coming face to face with the oldest inhabitant of the region, who saw the foundations of the hills laid and the valleys scooped out — Geologic Time, whose tent is the gray, overhanging rocks.

Many a walk I take in the fields and woods when I gather no new facts and make no new observations; and yet I feel enriched. I have been for an hour or more on intimate terms with trees and rocks and grass and birds and with "Nature's primal sanities"; the fragrance of the wild things lingers about my mind for days.

Yet the close observation of nature, the training

NATURE LORE

of the eye and mind to read her signals, to penetrate her screens, to disentangle her skeins, to catch her significant facts, add greatly to the pleasure of a walk and to life in the country. Natural history is on the wing, and all about us on the foot. It hides in holes, it perches on trees, it runs to cover under the stones and into the stone walls; it soars, it sings, it drums, it calls by day, it barks and prowls and hoots by night. It eats your fruit, it plunders your garden, it raids your henroost, and maybe disturbs your midnight slumbers.

At Woodchuck Lodge the woodchucks eat up my peas and melons and dig under the foundations of my house; the coons come down off the mountain for sweet apples in my orchard. I surprise the foxes among the cows on my early morning walks, or am awakened in the dawn by the hue and cry of the crows over a fox passing near, a little late in getting back to the cover of the woods.

All such things add interest to country life. No wild creature comes amiss, even though it rob your henroost. I sometimes grow tender toward the woodchuck, even though he raids my garden; he is such a characteristic bit of wild nature, creeping about the fields, or sitting upon his haunches to see if danger is near. He is of the earth, earthy, its true offspring, steeped in its savors, hugging it close, harmonizing with its soil and rocks, almost as liquid as its fountains and as perennial as its grass.

NATURE LORE

I even get reconciled to the unsavory but gentlemanly skunk. He does not disturb me if I do not disturb him, and if he chances to get into a trap which I have set for some other animal, his composure is great, and he looks the injured innocent that he is. Only I must keep my eye upon that tail when it starts to rise over his back. There is a masked battery there the noiseless shot of which is usually well aimed, and is pretty sure to rout the foe whether it hit the mark or not. Last summer the morning light revealed one held by the leg in a steel trap which I had set for rats that were helping themselves too freely to my roasting-ears. How sorry and deprecatory he looked as I approached, slowly straining to pull away from the cruel trap, and turning upon me a half-appealing, half-reproachful look! By imitating his slow, gentle manners, I lifted him and the trap to the mouth of a woodchuck hole, into which he quickly crept, leaving his trap-held foot outside. To release him then was an easy matter.

The skunk is a night prowler, and subsists mainly upon insects and small rodents; but I would not insure the birds' eggs or the young birds that happen to be in his path, though Mr. Seton says his tame skunks do not know how to deal with hen's eggs.

There is no prettier bit of natural history upon four legs than the red fox, especially when you sur-

NATURE LORE

prise him in your morning walk, or he surprises you in his. He, too, is a night prowler, but often he does not get home till after sun-up. Early one October morning, as I stood in the road looking out over the landscape, a belated fox jumped over the wall a few yards from me and loped unconcernedly along parallel with the road, then turned and scaled the fence, and crossed the road, and went bounding up the hill toward the woods with a grace and ease impossible to describe. I suppose it was his massive tail held level with his body that helped give the idea of buoyancy. There was no apparent effort, as when the farm dog climbs the hill, but the ease and lightness that goes with floating and winged things. It was indeed a pleasing spectacle, such as I had not seen for many years. This winter the fox-hunter with his hound will be trailing him from mountain to mountain or from valley to valley, and he will drift along over the snow, pausing now and then to harken back along his trail, and reluctantly expose himself to the eye of day in the broad open spaces. Unless the day is wet and his tail and fur get dragged, he will run from sun to sun without much apparent fatigue. But if his burden gets too great, he knows of holes in the rocks where he can take refuge.

Any device that a plant or an animal has for getting on in the world interests us; it brings the lower orders nearer to us. We have our own devices and

NATURE LORE

makeshifts, and we like to know how it is with our near or distant kin among the humbler orders. They are ourselves not yet come to consciousness and to the elective franchise. When the burr of the burdock, reaching forth its arms for such a chance, seizes on to your coat-tail, take your pocket-glass and examine the minute hooks that tip the ends of the seed-scales. They fish for you and your dog and sheep and cow, and they catch you, not with one hook, but with twenty or fifty, all at the same time. But in this case it is not the fish that is caught, but the fisherman. The plan of this fisherman is to go right along with his captor, the farther the better, and plant his progeny in a new territory. He lets go his hold upon the parent plant at a mere touch, but the touch gives him all the hold he wants. The hooks are fine and hard, like minute, sharp horns, not too much bent, — that would defeat the end, — and perfectly smooth and finished. Instead of hooks, the weed called “bidens” has the teeth or prongs armed with barbs like a fish-hook, many of them on each prong. They are quite as sure a trap as the hooks of the burdock. Nature never fails to perfect her device. Natural selection attends to that. Her traps, her wings, her springs, her balloons, always work. The wings of the maple keys, the ash, and the linden are all different, but they all work.

Nature seems partial to the burdock. What extra pains she seems to have taken to perpetuate this

NATURE LORE

worse than useless plant! So far as I know, nothing wants it or profits by it, though I have heard that the petioles when cooked suggest salsify. It is an Ishmaelite among plants. Every man's hand is against it, and nearly every animal has reason to detest it. Against their wills they are engaged in sowing its seeds. The other day I found some burrs matted on the tail of a woodchuck. Birds have been found trapped by its hooks. Apparently the only domestic animal that it does not seize hold of is the pig; the stiff, smooth bristles of the pig afford it a scant hold. It possesses more original sin than any other plant I know. How it drives its roots into the ground, defying your spading-fork! How it seems to drive its burrs into your garments, or into the hair of animals, refusing to let go till it is fairly torn in pieces! See the dog biting them out of his hair with a kind of contemptuous fury. If you try to help him, you must proceed very carefully and deliberately or he will confound you with the burdock and threaten the hand that seeks to aid him. The burdock is vicious to the last, the old burr clings with the same dogged determination as the new. As a noxious weed it is a great success. Discourage it by cutting it down you cannot. By hook or by crook it is bound to persist. Its juice is bitter and its fibre coarse. What a pity that so much native grit and enterprise cannot be turned to some good account! The burrs are detached from the

NATURE LORE

parent stem almost as easily as are the quills from the porcupine. Even while it is yet in bloom the hooks will seize your coat-tails and the burr let go its hold upon the stalk. The hooks are not attached to the separate seeds, but are for the burrs as a whole.

I know of no plant so difficult to prevent seeding. Cut it down in July, and in August it has new shoots loaded with burrs; cut these off, and in late September, or early October, it will evolve burrs directly from the stub of the old stalk, often in clusters and bunches, without a leaf to mother them.

The plant if unhindered grows three or four feet high and bears about five hundred burrs, which usually have twelve seeds each, or six thousand seeds to the plant. Before the seeds are ripe they are nearly the size and color of rye or peeled oats. Later they shrink and turn dark. So far as I know, nothing feeds upon them, save the larvæ of some insect. I have examined many burrs in October and found a small white grub in a single seed in each of them. Those good people who fancy that everything was made for some special service to man, would have trouble, I think, to find the uses of the burdock.

The advantage of that array of eager hooks to the burdock (there are more than two hundred of them on each burr) seems obvious, and yet here is the yellow dock alongside of it, a relative of our buckwheat, that has no hooks or other devices that

NATURE LORE

I can discover for scattering its seed, and yet it appears to compete successfully with its more lusty neighbor. One is about as abundant and troublesome to the gardener as the other. The seeds of the yellow dock are like small, brown, polished buckwheat. I have never seen birds or squirrels eat them, and what secret way they have of keeping up with the burdocks I do not know. The burdock plants itself deeper in the ground, and defies your spading-fork the more successfully.

I have always been curious to know why the birch is the only one among our many forest-trees that seems to have an ambition to plant itself upon a rock. Other trees do so occasionally, but in the woods I am familiar with I see ten birches upon rocks to one of any other tree. They sit down upon the rock as if it were a chair, and run their big roots off into the ground, apparently entirely at home. How in the first place they get enough foothold in the thin coat of leaf mould that covers the rocks to develop their roots and send them across the barren places and down into the soil is a puzzle. I have seen a small birch sapling that had obtained a foothold in a niche on the side of a cliff send one large root diagonally down across the face of the bare rock two or more yards to the ground, where it took hold and saved the situation. It was like a party going out from a starving camp for relief. To equip and pro-

NATURE LORE

vision the party required some resources. "Yes," you may say, "and to know where to send it required some wit." But the roots of a tree always tend downward, as the branches go upward. We are at the end of our tether when we say that such is the rule of nature.

The winged seeds always find their proper habitat, as if they had eyes to see the way. The seeds of the cat-tail flag find the ditches and marshes as unerringly as if they were convoyed. But this intelligence, or self-direction, is only apparent. The wind carries the seeds in all directions, and they fall everywhere, just as it happens, on the hills as well as in the ditches, but only in the latter do they take root and flourish. Nature often resorts to this wholesale method. In scattering pollen and germs by the aid of the wind, this is her method: cover all the ground, and you will be sure to hit your mark night or day.

After one or more windy days in November I am sure to find huddled in the recess of my kitchen door the branching heads of a certain species of wild grass that grows somewhere on the hills west of me. These heads find their ways across fields and highways, over fences, past tree and bushy barriers, down my steps, into the storm-house, and lie there, waiting on the doorsill like things of life, waiting to get into the house. Not one season alone, but every season, they come as punctually as the assessor.

NATURE LORE

The watchful broom routs them; but the next day or the next week there they are again, and now and then one actually gets into the kitchen, slipping in between your feet as you open the door. They bring word from over the hills, and the word is: "Sooner or later Nature hits her mark, hits all marks, because her aim is broadcast and her efforts ceaseless. The wind finds every crack and corner. We started on our journey not for your door, but for any door, all doors, any shelter where we could be at rest; and here we are!"

The purple loosestrife travels from marsh to marsh in the Hudson River Valley, and as its seeds are not winged, one may wonder how it gets about so easily. It travels by the aid of wings, but not of its own. Darwin discovered that the seeds of marsh plants are often carried in the mud on the feet of marsh birds. Years ago the loosestrife was in a large marsh six miles south of me. A few years later a few plants appeared in a pond near me, and now this and near-by ponds and marshes are lakes of royal purple in August. The loosestrife in late summer makes such a grand showing with its vast armies of tall, stately plants that one welcomes it to our unsightly marshes.

Only the present season did I observe a peculiar feature of our wild clematis that a little close attention might have shown me at any time: its conspicuous appearance in September, after its flowers

NATURE LORE

have faded, which has earned for it the name of "old-man's-beard," is owing to the fact that its seeds have long, feathered tails to aid in their dissemination. It is the only seed I know of that the wind carries by the tail. For some obscure reason it does not carry it very far, or at least does not plant it very successfully, as the clematis is rare with me. Instead of being sown broadcast over the hills and along the fences, it appears sparsely, at wide intervals. It is such a beautiful vine both in flowering-time and seeding-time that one wishes it were more common.

The plants that travel by runners above or below ground are many; the plants that travel by walking are few. I recall only the "walking fern," which now seems to have walked away from my neighborhood, and the black raspberry. Both are slow travelers, but they do reach out and take steps.

Some trees can fight a much more successful battle against browsing animals than can others. The apple and the red thorn are notable examples. Trees like the linden, which the cattle freely crop, are easy victims; they put up no kind of fight. They sprout freely, but they make no headway; their new shoots are swept off every summer, and there the low stool of the tree remains. The beech does better amid grazing cattle, but I doubt if it ever wins the fight. But the apple and the thorn, though the

NATURE LORE

struggle is a long and hard one, are sure to win in the end; after many years one central shoot gets a start from the top of the thorny mound of cropped twigs, makes rapid strides upward, and in due season stands there the perfected tree. It will now bear fruit for the short-sighted grazers that sought to destroy it.

Our belief in the uniformity of nature, or in the unchangeableness of natural law, is fundamental. We act upon it every hour of our lives; our bodies and minds are built upon that plan. Yet in detail, and within narrow limits, nature is unequal, capricious, incalculable. Can the farmer always foretell his crops or forecast a wet season or a dry? The problem is too complex, or our wits are too shallow.

Last season the hay-crop over a large part of the country broke the record. The meadows everywhere, and without any very obvious reason, doubled their yield; the farmers' barns from Pennsylvania to Maine were bursting with plenty, and at the end of haying a row of stacks encompassed or flanked most of them. The trees all seem to have had a superabundance of leaves. On my own grounds we raked up and put under cover for stable use nearly double the usual quantity from the same number of trees. One important factor in this meadow and pasture and tree fertility was probably the continued deep snows of last winter. About one hundred inches fell in the Hudson Valley, and two feet at one fall in

NATURE LORE

December. Snow warms and fertilizes. How it warmed up and quickened the mice beneath it! The meadows yielded double their usual number of meadow mice. Never have I seen in the spring evidence of such a crop. Over a wide area, wherever I looked in meadow bottoms or grassy hillsides or shaven lawns, there were the runways, the grassy nests, the camping-grounds of this vast army of meadow mice. They had evidently had a long picnic. They had had the world under there all to themselves. There had been nothing there to molest or to make them afraid, — no fox, no cat, no owl, no weasel, no mink, — and they had reveled in their freedom and security. One could read it all in the record upon the ground: their straw villages, their round tunnels and sunken runways through the grass, and the marks and refuse everywhere, as of temporary social and holiday gatherings. Vast numbers of bushes and small trees, especially of the apple order, were stripped of their bark to a height of two or more feet from the ground. I even saw a thicket of small young locusts with stems as white as bleached cornstalks. Spring quickly put an end to these winter festivities of the mice and compelled them to take to their old retreats and darkened lives under the ground. Evidently the old mother, in this part of the country at least, took good care of her children last winter, from grass and tree-roots to mice and insects.

NATURE LORE

In her subtler physical forces, Nature often seems capricious and lawless, probably on account of our limited vision. We see the lightning cleave the air in one blinding flash from the clouds to the earth, often shattering a tree or a house on its way down. Hence it is always a surprise to see the evidence that the thunderbolt strikes upward as well as downward. During an electric storm one summer night an enormous charge of electricity came up out of the earth under a maple-tree at the foot of the hill below my study, scattering the sod, the roots, and some small bushes like an explosion of powder or dynamite; then it rooted around on the ground like a pig, devouring or annihilating the turf, making a wide, ragged, zigzag trench seven or eight feet long down the hill in the ground, when it dived beneath the wagon track, five or six feet wide, bursting out here and there on the surface, then escaped out of the bank made by the plough on the edge of the vineyard. Here it seems to have leaped to the wire trellis of the grapevines, running along it northward, scorching the leaves here and there, and finally vented its fury on a bird-box that was fastened to a post at the end of the row. It completely demolished the box, going a foot or more out of its way to do so. The box was not occupied, so there was not the anticlimax of a bolt of Jove slaughtering house wrens or bluebirds. Maybe it was the nails that drew the charge to the box. But

NATURE LORE

why it was rooting around down the hill when it came out of the ground, instead of leaping upward, is a puzzle. It acted like some blind, crazy material body that did not know where to go. A cannon-shot would have made a much smoother trench. Its course on the ground was about twelve or fourteen feet, half above and half below ground, and its leap in the air about six feet. Strange that a thing of such incredible speed and power should yet have time to loiter about and do such "fool stunts"! This space-annihilator left a trail like a slow, plodding thing. It burrowed like a mole, it delved like a plough, it leaped and ran like a squirrel, and it struck like a hammer. A spectator would have been aware only of a blinding blaze of fire there on the edge of the vineyard, and heard a crash that would have stunned him; but probably could not have told whether the bolt came upward or downward. Lightning is much quicker than our special senses.

On another occasion, beside my path through the woods to Slabsides, I saw where a bolt had come up out of a chipmunk's hole at the root of a tree, scattered the leaves and leaf mould about, and apparently disappeared in the air.

The lightning seems to have its favorite victims among the trees. I have never known it to strike a beech-tree. Hemlocks and pines are its favorites in my woods. In other regions the oak and the ash re-

NATURE LORE

ceive its attention. An oak on my father's farm was struck twice in the course of many years, the last bolt proving fatal. The hard, or sugar, maple, is frequently struck, but only in one instance have I known the tree to be injured. In this case a huge tree was simply demolished. Usually the bolt comes down on the outside of the tree, making a mark as if a knife had clipped off the outer surfaces of the bark, revealing the reddish-yellow interior. In several cases I have seen this effect. But a few summers ago an unusually large and solid sugar maple in my neighbor's woods received a charge that simply reduced it to stovewood. Such a scene of utter destruction I have never before witnessed in the woods. The tree was blown to pieces as if it had been filled with dynamite. Over a radius of fifty or more feet the fragments of the huge trunk lay scattered. It was as if the bolt, baffled so long by the rough coat of mail of the maple, had at last penetrated it and had taken full satisfaction. The explosive force probably came from the instantaneous vaporization of the sap of the tree by the bolt.

Some friends of mine were inoculated with curiosity about insects by watching the transformation of the larvæ of one of the swallow-tailed butterflies, probably the *Papilio asterias*. As I was walking on their porch one morning in early October I chanced to see a black-and-green caterpillar about two inches long posed in a meditative attitude upon the side

NATURE LORE

of the house a foot or more above the floor. The latter half of its body was attached to the board wall, and the fore part curved up from it with bowed head. The creature was motionless, and apparently absorbed in deep meditation. I stooped down and examined it more closely. I saw that it was on the eve of a great change. The surface of the board immediately under the forward part of the body had been silvered over with a very fine silken web that was almost like a wash, rather than something woven. Anchored to this on both sides, as if grown out of the web, ran a very fine thread or cord up over the caterpillar's back, which served to hold it in place; it could lean against the thread as a sailor leans against a rope thrown around him and tied to the mast. With bowed head the future butterfly hung there, and with bowed head I waited and watched. Presently convulsive movements began to traverse its body; through segment after segment a wave of effort seemed to pass. It was a beginning of the travail pains of transformation. Then in a twinkling a slight rent appeared in the skin on the curve of the back, revealing the new light-green surface underneath, the first glimpse of the chrysalis. The butterfly was being born. Slowly, as labor continued, the split in the skin extended down the back and over toward the head till the outlines of the chrysalis became plainly visible. I was witnessing that marvelous transformation in nature of

NATURE LORE

a worm into a creature of a much higher and more attractive order; the worm mask was being stripped off, and an embryo butterfly revealed to view. In a few minutes the head and forward part of the body were free, and the latter half was fast becoming so.

The fine silken cord over the back served its purpose well, holding the creature in place while it literally wriggled out of its skin, and when this feat was accomplished, holding it in position for its long winter sleep. The skin behaved as if it were an interested party in the enterprise; much better, I am sure, than one's garments would if one were to try to wriggle out of them without using one's limbs. It folded back, it drew together, it finally became a little pellet or pack of cast-off linen that clung to the tail end of the chrysalis. To effect the final detachment, and not lose the grip which this end seemed to have on the board beneath it, required a good deal of struggling, probably a full minute of convulsive effort before the little bundle of cast-off habiliments let go and dropped, a dark pellet the size of a small pea. Then our insect was at rest, and seemed slowly to contract and stiffen. It had woven itself the silken loop to hold it to its support, and it had struggled out of its old skin on its own initiative or without being mothered or helped, as so many newborn creatures are.

I did not have the pleasure of seeing it spin the cord over the back which plays an important part

NATURE LORE

in the process of transformation, mechanical part though it be; but a few days later, through the patient and clear-seeing eyes of my friend Miss Grace Humphrey, I witnessed this operation also. She wrote:—

The day after you left we found another caterpillar, a few feet away from yours. It had already made its saddle-cord and shed its silken robe when we found it, but we watched it change from gray-green to, not greenish-brown at all, but a grayness matching the concrete of the house; for it was higher up than yours, on the ledge below the window, hanging from the ledge against the plaster wall. Its cord, too, apparently grew thicker just at the ends, showing up more plainly for a bit; then like yours it dried up and more perfectly matched its background. In neither of them did the cord continue to look thicker.

The same day I found a third caterpillar under the pear-tree, the very same kind, black with a wide green stripe marking off each segment, and the rows of yellow buttons. I carried it on a leaf up to the porch, where we put it under a glass bowl. But of course it thought that an unfavorable place for housing itself for the winter, and it would n't start, though we kept it there two days. At noon, when freed, it climbed up the wall of the house rather near yours (so they were photographed together), and we held our breaths to see if it would start building operations there. But no. Up the window-ledge it wormed its way, and thence up and up, by the side of the window, leaving all the way along a silky thread, and constantly going back and forth with its head.

Mr. R—— knocked it down once to keep it in the sunlight in order to photograph it, and it immediately climbed

NATURE LORE

up to the same spot, all the time leaving the white silk thread. It kept climbing up and up till I had to get on a chair to see it, and once I lost my balance and jumped down, jarring it so that I knocked it to the floor. But up it got, and climbed up, and spent the rest of the afternoon alternately wriggling about to find just the right place and making a silken background in one spot. The next day it was still on the window-ledge. About eleven o'clock it disappeared, and I hunted and hunted before I found it on the under side of the porch railing! It was busily making its network, but it made far less than either of the others, and most of the time it was staying quite still. The following day, about noon, it made its cord, anchoring that at one end, then at the other, and going back and forth to strengthen it. When the cord was ready, it put its head through (the cord was made ahead of it) and wriggled itself into the cord; it wriggled fully as hard as when yours got itself out of its striped cover. So slowly and carefully it made its way into place, being most careful not to strain the cord. We watched breathlessly. It pushed itself so far through that it was about half and half, and then it had to wriggle backward till its head and a third of its body was through, and two thirds not through; and wriggling back took far greater care than forward. It stayed just that way, all huddled up for nearly four days, when about eight o'clock in the morning it split and divested itself of its robe. It is matching the brown woodwork like yours, and there all three are!

The incomparable French natural-historian and felicitous writer Henri Fabre has witnessed what I never have: he has seen the caterpillar build its case or cocoon. In the instance which he describes it was

NATURE LORE

the small grub of one of the Psyches. The first thing the creature did was to collect bits of felt or pith from the cast-off garment of its mother. These it tied together with a thread of its own silk, forming a band, or girdle, which it put around its own body, uniting the ends. This ring was the start and foundation of the sack in which it was to incase itself. The band was placed well forward, so that the insect could reach its edge by bending its head up and down and around in all directions. Then it proceeded to widen the girdle by attaching particles of down to its edges. As the garment grew toward its head, the weaver crept forward in it, thus causing it to cover more and more of its body till in a few hours it covered all of it, and the sack was complete, a very simple process, and, it would seem, the only possible one. The head, with the flexible neck, which allowed it to swing through the circle, was the loom that did the weaving, the thread issuing from the spinneret on the lip. Did the silk issue from the other end of the body, as we are likely to think it does, the feat would be impossible. I suppose a woman might knit herself into her sweater in the same way by holding the ball of yarn in her bosom and turning the web around and pulling it down instead of turning her body — all but her arms; here she would be balked. To understand how a grub weaves itself a close-fitting garment, closed at both ends, from its own hair, or by what sleight

NATURE LORE

of hand it attaches its cocoon to the end of a branch, I suppose one would need to witness the process.

In October these preparations and transformations in the insect world are taking place all about us, and we regard them not. The caterpillars are getting ready for a sleep out of which they awaken in the spring totally different creatures. They tuck themselves away under stones or into crevices, they hang themselves on bushes, they roll themselves up in dry leaves, and brave the cold of winter in tough garments, woolly or silky, of their own weaving. Some of them, as certain of the large moths, do what seems like an impossible stunt: they shut themselves up inside a tough case, or receptacle, and attach it by a long, strong bit of home-made tape to the end of a twig, so that it swings freely in the wind. I have seen the downy woodpecker trying to break into one of these sealed-up, living tombs without avail. Its free, pendent position allows it to yield to the strokes of the bird, and all efforts to penetrate the case are in vain.

How the big, clumsy worm, without help or hands, wove itself into this bird-proof case, and hung itself up at the end of a limb, would be a problem worth solving. Of course it had its material all within its own body, so is not encumbered with outside tools or refractory matter. It was the result of a mechanical and a vital process combined. The creature knew how to use the means which Nature had given

NATURE LORE

it for the purpose. Some of the caterpillars weave the chrysalis-case out of the hairs and wool of their summer coats, others out of silk developed from within.

On October mornings I have had great pleasure in turning over the stones by the roadside and lifting up those on the tops of the stone walls and noting the insect-life preparing its winter quarters under them. The caterpillars and spiders are busy. One could gather enough of the white fine silk from spider tents and cocoons to make a rope big enough to hang himself with. The jumping spider may be found in his closely woven tent. Look at his head through a pocket-glass, and he looks like a miniature woodchuck. His smooth, dark-gray, hairy pate and two beadlike eyes are very like; but his broad, blunt nose is unlike. It seems studded with a row of five or six jewels; but these jewels are eyes. What extra bounty Nature seems to have bestowed upon some of these humble creatures! We find our one pair of eyes precious; think what three or four pairs would be if they added to our powers of vision proportionately! But probably the many-eyed spiders and the flies with their compound eyes see less than we do. This multitude of eyes seems only an awkward device of Nature's to make up for the movable eye like our own.

In some of the spiders' cocoons under the stones on the tops of the walls you will find masses of small pink eggs, expected to survive the winter, I suppose,

NATURE LORE

and hatch out in the spring. The under side of a stone on the top of a stone wall seems like a very cold cradle and nursery, but the caterpillars in their shrouds survive here, and may not the spiders' eggs?

In October you will find the caterpillars in all stages of making ready for winter. They first cover a small space on the stone upon which they rest with a very fine silken web; it looks like a delicate silver wash. This is the foundation of the coming cocoon, but I could never catch any of them in the act of weaving their cocoons. I brought one to the house and kept it under observation for several days, but it was always passive whenever I glimpsed it through the crack between the stones. The nights were frosty and the days chilly, but some time during the twenty-four hours the creature's loom was at work. One morning a thin veil of delicate silver threads, through which I could dimly see the worm, united the two stones. It seemed to be in the midst of a little thicket of vertical, shining silken threads. It was like some enchantment. A little later the thicket, or veil, had developed into a thin cradle in which lay the chrysalis and the cast-off skin of the worm. This caterpillar had been disturbed a good deal and made to waste some of its precious silk, so that its cocoon was finally a thin, poor one. "Life under a stone" forms a chapter in Nature's infinite book of secrecy which most persons skip, but which is well worth perusal.

NEW GLEANINGS IN OLD FIELDS

I. LIVE NATURAL HISTORY

RECENTLY, while reading Thoreau's Journal, I wondered why his natural history notes, with which the Journal abounds, interested me so little. On reflection I saw that it was because he contented himself with making only a bare statement of the fact — he did not relate it to anything else or interpret its meaning. There is a great deal of bald, dry, natural history of this kind in his Journal which he never wove together into a living texture.

When he simply tells me, "I see a downy woodpecker tapping on an apple-tree and hear when I have passed his sharp, metallic note," he has not interested me in the woodpecker. He must string the bird on his thoughts in some way; he must relate him to my life or experience. The facts of natural history become interesting the moment they become facts of human history. All the ways of the wild creatures in getting on in the world interest us, because we have our ways of getting on in the world. All their economies, antagonisms, failures, devices, appeal to us for the same reason.

Thoreau's description of the battle of the ants in "Walden" is intensely interesting because it is so

NEW GLEANINGS IN OLD FIELDS

human. Valor, heroism, stir us in whatever field they appear.

As I write, a little chippie comes among the vines on my porch looking for nesting-material. The old spring impulse to increase and multiply is strong upon her; she tugs at the strings that tie the vines, she scrutinizes every branch for some shred or bit that will serve her purpose. She interests me and I lend her a hand by releasing some of the strings which she could not manage. I am familiar with her problem, as we all are. The cliff swallows daintily gathering mud at the edges of a puddle in the road, lifting their wings and standing on tip-toe as it were, to guard against soiling their plumage, is a sight I always pause to witness.

Yesterday I sat for an hour in the woods near a dead maple-stub in which a flicker was excavating her nest. At intervals the hammering would cease, and the bird, on her guard against the approach of stealthy enemies, would appear at the opening and take a long look. Finally, when she discovered me, she came out and went off in the woods, and seemed to have some conversation with her mate.

All the industries and ways and means among the animals are interesting. A chipmunk carrying nuts and seeds to her den, a red squirrel cutting off the chestnut burrs, too impatient to wait for the frost to open them on the trees, even a woodchuck carrying dry grass and stubble into his hole for a nest,

NEW GLEANINGS IN OLD FIELDS

arrest the attention. The currents of life everywhere, the lampreys piling up the stones in the creek-bottom for a nest, the muskrat in the fall building his aquatic tent with mouthfuls of sedge-grass, excite our interest. In May all the seed-eating and nut-eating creatures are hard put to it to obtain food. The red squirrel comes in front of my door and eats the sterile catkins of the butternut, and they evidently help tide him over this season of scarcity. One morning a gray squirrel in his quest for a breakfast invaded the tree. The red squirrel soon spied him and hustled him out of it very spitefully. The gray went undulating along the top of the stone wall, the picture of grace and ease, while the red, with tail kinked, was in hot pursuit.

To find an interest in natural history one must add something more than the fact, one must see the meaning of the fact.

I feel no especial interest in the kingbird that alights on the telephone-wire in front of me, but when he climbs high up in the air and picks some invisible insect from out the apparently empty space, and brings it back to his perch, I am interested. It was a characteristic act. The fox is interesting for his cunning, the skunk and porcupine for their stupidity. We see in the last two how the weapons of defense which Nature has so liberally bestowed upon them have left no room for the exigencies of life to develop their wits.

NEW GLEANINGS IN OLD FIELDS

The novel, the extraordinary, the characteristic, the significant, always interest us. The human bore is a person who has no conception of what constitutes the interesting; he or she pours out his own private experiences upon us as if they were of the same interest to us as to him. How prone we are to think our special ailments are of universal interest, but how rarely is this the case!

One afternoon two cuckoos, flying side by side, passed my door. In the morning they passed again in the same way and going in the same direction. I became interested. I said, This means business. Following the course they took, I went straight to a clump of red-thorn trees a hundred yards distant, and there was the nest, with young more than half-grown. They were black-billed cuckoos. The mother bird chided me in that harsh, guttural, staccato note of hers, and kept her place on a branch near the nest. One of the three young got out of the rude nest and perched on a twig, holding its head or neck nearly vertical. Its pronounced stubbly quills and peculiar attitude gave it an unbirdlike look. The cuckoos seem to time their nesting with that of the tent-caterpillars upon which they feed. As the supply of these orchard pests, and many other similar pests, had been nearly exterminated by the cold, wet May of the previous year (1917), it would have been very interesting to know how the birds made

NEW GLEANINGS IN OLD FIELDS

up for the deficiency — what was the substitute. But I could not find out.

Nearly every cuckoo's nest I have happened to find has been on a thorn-bush. Why do they choose this tree? What special enemy are they on their guard against? Our cuckoos evidently lay their eggs at longer intervals than the other birds. In the present case one of the young was clearly several days older than its fellows. This fact, with the rude skeleton of a nest, suggests some reminiscence of the habits of the European cuckoo, a parasitical bird.

The wild life around one becomes interesting the moment one gets into the current of it and sees its characteristics and by-play. The coons that come down off the mountain into my orchard for apples on the chill November nights; the fox that prowls about near me and wakens me by his wild, vulpine squall at two o'clock in the morning; the woodchucks burrowing in my meadows and eating and tangling my clover, and showing sudden terror when they spy me peeping over the stone wall or coming with my rifle; the chipmunk leaving a mound of freshly dug earth conspicuous by the roadside, while his entrance to his den is deftly concealed under the grass or strawberry-vines a few yards away; the red squirrel spinning along the stone wall, his movements apparently controlled by the electric-like waves of energy that run along his tail and impart

NEW GLEANINGS IN OLD FIELDS

to it a new curve or kink every moment, or chipping up my apples and pears for the seed, and snickering and cachinnating as if in derision when I appear upon the scene — how much there is in the lives of all these creatures that we should find keenly interesting if we knew how to get at it!

This rainy morning I saw two red squirrels make a wild dash through my garden, one in hot pursuit of the other. A woven wire fence was in the way; the fleeing one cleared one of the meshes neatly, but his pursuer, intent on his enemy, blundered and doubled up against the obstruction and was delayed a moment — how much I wanted to know what the mad racing meant, and how it resulted! The red squirrel is a perky, feather-edged creature, the hottest and most peppery rodent we have in our woods and orchards, every hair of him like a live wire, and many of his movements are to me quite unaccountable.

The search for the elements of the interesting in nature and in life, in persons and in things — well, is an interesting search.

II. THE BARN SWALLOW

How winsome is the swallow! How tender and pleasing all her notes! Is it boyhood that she brings back to us old men who were farm boys in our youth? We saw the swallows play out and in the wide-open barn-doors in haying-time, their steel-

NEW GLEANINGS IN OLD FIELDS

blue backs and ruddy throats glancing in the sun, and their gentle, unctuous wing gossip falling on our ears. Their coarse nests — mud without, but feathers within — were plastered on the rafters in the peak, and when the young were out we saw them perched in a row on the ridge-board, resting from their first flights.

Now, as I sit within my barn-door outlook, the same swallows are playing before me, untouched by the many long years that have passed, giving the impression of perpetual youth; the same tender, confiding calls, the same darting, wayward flight, the same swift coursings above the shorn meadows; darlings of the ripe summer air, aerial feeders, reaping an invisible bounty above us, touching the earth in quest of a straw or a feather, or for clay for the nest, tireless of wing, and impotent of foot, as of old.

The swallow has two words, one for her friends, and one for her foes, — “Wit, wit, wit,” uttered so confidingly for the friends, and “Sleet, sleet, sleet,” uttered sharply for the foes.

Instead of the ridge-board of my youth, the swallow now has a new perch, the telephone and telegraph wires strung along the highway.

Shall we look upon the swallow as a songster? Virgil refers to him as such, and when he perches upon the telephone-wire in front of my barn-door and fills and refills his mouth with a succession of

NEW GLEANINGS IN OLD FIELDS

those squeaking, smacking, unctuous notes, his throat swelling and throbbing, his beak opening and shutting, glancing now to the right, now to the left, as if to see if his mate is near, he looks, and we may say is, the songster that Virgil called him. The performance lacks resonance and the fluty quality of our regular song-birds; it seems to be made in the cheeks or by the softer parts of the mouth. The beak is too small and feeble to play much of a part in its production. What a waxy, adhesive sort of a sound it is! I wonder if the swallow has the organ called the syrinx common to the regular song-birds. If one may compare sound with substance I should say that the swallow's strain seems viscous and turbid rather than liquid and translucent like that of the acknowledged song-birds. It is less a musical performance for its own sake than a note of self-congratulation, or of salutation to its fellows. The bird does not lift up his head and pour out his strain as if for the joy of singing; he delivers it as a speaker delivers his discourse, looking about him and laying the emphasis here and there in a confident and reassuring tone.

The cliff swallows and the purple martins and bank swallows are much more social and gregarious than the barn swallows. I do not remember ever to have seen more than one nest of the latter at a time in the peak of the barn, though I am told that in New England they nest in colonies. I do not know that

NEW GLEANINGS IN OLD FIELDS

they migrate in large flocks like the other swallows. I only know that their season with us ends about the 20th of August, and that they pass the winter in South America, where I hope they have as happy a time as they do here. If anything preys upon them while they are here I do not know what it is. They could laugh at the swiftest hawk. They share the distrust of all birds toward the cat, though I have never known Puss to catch one. They will swoop down spitefully if she lingers about their haunts, and I have seen her try to strike them with her paw, but have never known her to succeed.

My swallows have a pretty habit, when the day is chilly and cloudy or stormy, of collecting their brood on the little ledges or shelves above the windows on the south gable of the house and feeding them there. The young sit there in a huddled row, apparently looking off in the fields of air where their parents are coursing for insects, and when they see them returning, they break out in a happy and grateful chatter. The old weather-worn gable is for the moment the scene of a very pleasing and animated incident in swallow life.

III. INSECTS

One reason why all truthful and well-written books upon insects interest us more than the subject would seem to warrant is that no creature is small in print, or in a book. Print is the great equal-

NEW GLEANINGS IN OLD FIELDS

izer; it magnifies the little and it minimizes the big. When Fabre focuses our attention upon a wasp or a spider, his account engrosses our minds as completely as an account of a lion or an elephant would; the insect is singled out and separated from the thousand forms and entanglements that belittle it in field and wood; it alone occupies the page. The lion can do no more. It is precisely like putting the flea under the microscope. The wars, loves, industries, activities of Fabre's little people are described in terms and images which we use in giving an account of man and the greater beasts. The words make them big. A moment ago a minute red insect, a mere moving point, revealed itself to my eye, crawling across this sheet of paper. It was so frail and small that a bare touch of my finger, as my pocket-glass showed, crushed it. If I could give you its life history, and show its relation to other insects, it would stand out on my page as distinctly as if it had been a thousand times larger: its travels, its adventures, its birth, its death, would fill the mind's eye; the reader would not have to grope for it on my page, as my eye did when it discovered it.

There is no little and no big to nature, and there is none to the mind. We think of the whirling solar system as easily as of a whirling top. The space that separates us from the fixed stars is no more to the mind than the space that separates us from our neighbors. In like manner the atoms and the mole-

NEW GLEANINGS IN OLD FIELDS

cules of matter, when we have once conceived of them, are as easy of apprehension as are the rocks and the mountains. The theory of their nature and activities figures as large in our minds as that of the planetary systems. The stories of many of Fabre's flies and beetles interest us as much, and are quite as significant, as the story of Jack the Giant-Killer or of Robinson Crusoe. His history of the tumblebug amuses and interests us as much as that of any of Plutarch's heroes. But see the tumblebug there in the path or by the roadside, struggling with his little black globe, and he is little more than the microscopic spider on my sheet of paper. His history must be written large, magnified by printer's type, before it comes fully within our ken or has power to move us.

Fabre's excursions afield are as entertaining and suggestive as Roosevelt's excursions into the big-game lands of Africa. With the true artist size does not count. The same is true of all the minutiae of nature — flowers, insects, birds, fishes, frogs. We are bound to magnify them by describing them in the terms of our experience with larger bodies.

A wasp will capture its prey, paralyze it, and leave it upon the ground and then go a few yards away and dig its hole. Then it will come back, look its game over, take its measure, and apparently conclude that the hole is too small, then go back and enlarge it, sometimes making several trips of this

NEW GLEANINGS IN OLD FIELDS

kind. Its attitudes and procedure would lead you to say that the wasp was thinking and calculating as a mechanic would under similar circumstances. In another case the *Sphex* wasp has need to paralyze the mouth-parts of the prey she is carrying, so, as she bestrides it and drags it also by its antennæ, it cannot grip her with its mandibles or impede her progress by seizing upon blades of grass by the way. Like a skillful surgeon, the wasp knows just what to do, knows in what part of the head to insert her sting to produce the desired effect.

“To know everything and to know nothing,” says Fabre, “according as it acts under normal or exceptional conditions: that is the strange antithesis presented by the insect race.”

But we must never credit the insect with understanding as the result of cogitation; it knows nothing; its life is a series of acts fatally linked together. The mind of the insect is the mind of Nature; it is action and not reflection. The plant does not consciously select the elements in the soil or the air that it needs, as we select; the vital chemistry in the organism does the selecting. But the moment we name what it is that does the selecting, we are caught in a trap — we want to know what prompted it to the act. We cannot find the under side of these things, because there is no under side, or upper side either, any more than there is to the earth.

NEW GLEANINGS IN OLD FIELDS

IV. THE DOG

The most wonderful thing about the dog is not his intelligence, but his capacity for loving. We can call it by no other name. The more you love your dog, the more your dog loves you. You can win your neighbor's dog any time by loving him more than your neighbor does. He will follow you to the ends of the earth if you love him enough. He may become so attached to you that he fairly divines your thoughts, not through his own power of thought, but through his intense sympathy and the freemasonry of love.

He is the ideal companion because he gives you a sense of companionship without disturbing your sense of solitude. Your mind is alone, but your heart has company. He is below your horizon, but something comes up from his life that mingles with your own. This friend walks with you, or sits with you, and yet he does not come between you and your book, or between you and the holiday spirit you went out to woo. He is the visible embodiment of the holiday spirit; he shows you how to leave dull care behind; he goes forth with you in the spirit of eternal youth, sure that something beautiful or curious or adventurous will happen at any turn of the road. He finds no places dull, he is alert with expectancy every moment.

In him you have good-fellowship, always on tap,

NEW GLEANINGS IN OLD FIELDS

as it were. Say the word, and he bounds to your side, or leads the way to the woods.

My dog enjoys a walk more than I do; his nature-study is quite as real as mine is, though of a totally different kind; the sense of smell that plays such a part in his excursions, plays little or none in mine, and the eye and the mind, which contribute so much to my enjoyment, are almost a blank with him. He enjoys the open fire, too, and a warm, soft bed, and a good dinner. All his purely animal enjoyments are as keen or keener than mine, but has he any other?

How different his interest in cats is from mine, and in dogs, and in men! He is not interested in the landscape as a whole: I doubt very much if he sees it at all; but he is interested in what the landscape holds for him — the woodchuck-hole, or the squirrel's den, or the fox's trail. His life is entirely the life of the senses, and on this ground we meet and are boon companions.

If he has any mind-life, and ideas, if he ever looks back over the past, or forward into the future, I see no evidence of it. When there is nothing doing he sleeps; apparently he could sleep all the time, if there were nothing better going on.

V. WOOD WAIFS

Those little waifs from the woods — chickadees, nuthatches, downy woodpeckers, and brown creep-

NEW GLEANINGS IN OLD FIELDS

ers — that come in winter and feed on the suet on the maple in front of my window, how much company they are to me! What thoughts and associations they bring with them! What a pleasure to have them as my guests on the old tree! The cold, naked, snow-choked woods — what can those little pilgrims get there? I think the nuthatch touches me the most closely; he is pretty to look upon, and his voice is that of a child, soft, confiding, contented, and his ways are all ways of prettiness — his sliding up and down and round the tree, his pose, with head standing out at right angles to the body, which enables him to see the approach of danger as readily as if he were perched on a horizontal limb, his pretty habit of making a vise of a crevice in the bark to hold a nut. All his notes and calls are pleasing; he is incapable of a harsh sound. His call in the spring woods when we made maple sugar in my boyhood — “yank, yank, yank” — how it comes back to me! Not a song, but a token — the spirit of the leafless maple-woods finding a voice.

And now for two or three weeks I have had another guest at the free-lunch table, the prettiest of them all, the red-breasted nuthatch from the North, and he so appreciates my bounty that he has taken up his temporary abode here in a wren's box a few yards from the lunch-table. One cold day I saw him go into the box and remain for some time. So at sundown I went and rapped on his retreat, and

NEW GLEANINGS IN OLD FIELDS

out he came. He spends nearly half his time at the suet lunch. How pretty he is! and as spry as a cricket; about two thirds the size of the white-breasted, he is quicker in his movements. He glides round the old tree like a spirit. He does not seem to have the extra joint in his neck that his larger cousin has; he does not point his bill straight out from the tree at right angles to it, but turns his head more from side to side. I call him my baby bird, he is so suggestive of babyhood. It is amusing to see him come down upon a fragment of hickory-nut when he has wedged it into the bark. Each blow is seconded by a flash of his wings, as if the tiny wings reinforced the head. One day I put out a handful of cracked hickory-nuts, and he hustled them all away as fast as he could carry them, hiding them here and there, in the vineyard, in the summer-house, on the woodpile, whether with a view to hoarding them for future use, or whether in obedience to some blind natural instinct, I know not. The white-breasted does the same thing, but I never see either of them looking up their hidden stores.

Two downy woodpeckers, male and female, but evidently not mated at this season, come many times a day. The male is a savage little despot; no other bird shall dine while he does. He bosses the female, the female bosses the big nuthatch, the nut-hatch bosses the red-breast, the red-breast bosses the chickadees, the chickadees boss the brown

NEW GLEANINGS IN OLD FIELDS

creeper and the juncos. Not one bird is hospitable to another. Each seems to look upon the suet as its special find.

The more inclement the season, the more our sympathy goes out to our little wild neighbors who face it and survive it. The tracks of the mice and the squirrels in the winter woods have an interest for one they could not possibly have in summer were they visible then. O frost and snow, where is your victory? O white and barren solitude, thou art not all-potent! How distinctly I remember where our schoolboy path through the woods crossed an old bush fence, and the fresh prints in the snow of the feet of the red and gray squirrels to whom the old fence served as a highway. Those sharp, nervous, hurried tracks and the silent, snow-choked woods, — silent except when the frost pistols snapped now and then, — how vivid the picture of it all is in my memory!

The delicate tracks of the wood mice and their tunnels up through the snow here and there beside our path — they are still unfaded in my mind, after a lapse of more than seventy years. Occasionally the stealthy track of a red fox would cross our trail both in field and wood — never hurried like that of the mice and the squirrels and the hares, but slow — a watchful, listening walker in the midnight winter solitude.

Wild life in winter is like black print on a white

NEW GLEANINGS IN OLD FIELDS

page — he who runs may read. In summer it is print on a green or brown or gray page. The little waifs from the woods that come to my door day after day in winter, so active and cheery and brave-hearted, — heroic little figures that ask no favors of me or any one, yet who complacently help themselves to the proffered suet and nuts, and go their way like a merry gypsy band, — they little know that they are my benefactors as much as I am theirs.

VI. AN INTERESTING PLANT

In our walks we note the most showy and beautiful flowers, but not always the most interesting. Who, for instance, pauses to consider that early species of everlasting, called in the botany *Antennaria*, that grows nearly everywhere by the roadside and about poor fields? It begins to be noticeable in May, its whitish downy appearance, its groups of slender stalks crowned with a corymb of paperlike buds, contrasting with the fresh green of surrounding grass or weeds. It is a member of a very large family, the *Compositæ*, and does not attract one by its beauty, but it is interesting because of its many curious traits and habits. For instance, it is diœcious, that is the two sexes are represented by separate plants; and what is more curious, these plants are usually found separated from each other in well-defined groups, like the men and women in

NEW GLEANINGS IN OLD FIELDS

an old-fashioned country church. Always in groups, here a group of females, there a few yards away a group of males. The females may be known by their more slender and graceful appearance and, as the season advances, by their outstripping the males in growth. Indeed, they become real amazons in comparison with their brothers. The staminate, or male, plants grow but a few inches high; the heads are round and have a more dusky or freckled appearance than do the pistillate; and as soon as they have shed their pollen their work is done, they are of no further use, and, by the middle of May or before, their heads droop, their stalks wither, and their general collapse sets in. Then the other sex, or pistillate plants, seem to have taken a new lease of life; they wax strong, they shoot up with the growing grass and keep their heads above it; they are alert and active, they bend in the breeze, their long, tapering flower-heads take on a tinge of color, and life seems full of purpose and enjoyment with them. I have discovered, too, that they are real sun-worshipers; that they turn their faces to the east in the morning and follow the sun in his course across the sky till they all bend to the west at his going down. On the other hand, their brothers have stood stiff and stupid and unresponsive to any influence of sky or air so far as I could see, till they drooped and died.

Another curious thing is that the females seem

NEW GLEANINGS IN OLD FIELDS

vastly more numerous — I should say almost ten times as abundant. You have to hunt for the males; the others you see afar off. In my usual five-minute morning walk to the post-office I pass several groups or circles of females in the grass by the roadside. I note how they grow and turn their faces sunward. I observe how alert and vigorous they are and what a purplish tinge comes over their mammæ-shaped flower-heads, as June approaches. I looked for the males; to the east, west, south, none could be found for hundreds of yards. On the north, about two hundred feet away, I found a small colony of meek and lonely males. I wondered by what agency fertilization would take place, by insects or by the wind. I suspected it would not take place, no insects seemed to visit the flowers, and the wind surely could not be relied upon to hit the mark so far off, and from such an unlikely corner too. But by some means the vitalizing dust seemed to have been conveyed. Early in June the plants began to shed their down, or seed-bearing pappus, still carrying their heads at the top of the grass, so that the breezes could have free access to them and sow the seeds far and wide.

As the seeds are sown broadcast by the wind, I was at first puzzled to know how the two sexes were kept separate, and always in little communities, till I perceived what I might have read in the botany, that the plant is perennial and spreads by

NEW GLEANINGS IN OLD FIELDS

offsets and runners like the strawberry. This would, of course, keep the two kinds in groups by themselves.

VII. NATURE NEAR HOME

After long experience I am convinced that the best place to study nature is at one's own home, — on the farm, in the mountains, on the plains, by the sea, — no matter where that may be. One has it all about him then. The seasons bring to his door the great revolving cycle of wild life, floral and faunal, and he need miss no part of the show.

At home one should see and hear with more fondness and sympathy. Nature should touch him a little more closely there than anywhere else. He is better attuned to it than to strange scenes. The birds about his own door are his birds, the flowers in his own fields and wood are his, the rainbow springs its magic arch across his valley, even the everlasting stars to which one lifts his eye, night after night, and year after year, from his own doorstep, have something private and personal about them. The clouds and the sunsets one sees in strange lands move one the more they are like the clouds and sunsets one has become familiar with at home. The wild creatures about you become known to you as they cannot be known to a passer-by. The traveler sees little of Nature that is revealed to the home-stayer. You will find she has made her home where

NEW GLEANINGS IN OLD FIELDS

you have made yours, and intimacy with her there becomes easy. Familiarity with things about one should not dull the edge of curiosity or interest. The walk you take to-day through the fields and woods, or along the river-bank, is the walk you should take to-morrow, and next day, and next. What you miss once, you will hit upon next time. The happenings are at intervals and are irregular. The play of Nature has no fixed programme. If she is not at home to-day, or is in a non-committal mood, call to-morrow, or next week. It is only when the wild creatures are at home, where their nests or dens are made, that their characteristics come out.

If you would study the winter birds, for instance, you need not go to the winter woods to do so; you can bring them to your own door. A piece of suet on a tree in front of your window will bring chickadees, nuthatches, downy woodpeckers, brown creepers, and often juncos. And what interest you will take in these little waifs from the winter woods that daily or hourly seek the bounty you prepare for them! It is not till they have visited you for weeks that you begin to appreciate the bit of warmth and life they have added to your winter outlook. The old tree-trunk then wears a more friendly aspect. The great inhospitable out-of-doors is relenting a little; the cold and the snow have found their match, and it warms your heart to think that you can help these brave little feathered people to win

NEW GLEANINGS IN OLD FIELDS

the fight. Not a bit daunted are they at the fearful odds against them; the woods and groves seem as barren as deserts, the earth is piled with snow, the trees snap with the cold — no stores, no warmth anywhere, yet here are

“these atoms in full breath
Hurling defiance at vast death.”

They are as cheery and active as if on a summer holiday.

The birds are sure to find the tidbit you put out for them on the tree in front of your window, because, sooner or later, at this season, they visit every tree. The picking is very poor and they work their territory over and over thoroughly. No tree in field or grove or orchard escapes them. The wonder is that in such a desert as the trees appear to be in winter, in both wood and field, these little adventurers can subsist at all. They reap a, to us, invisible harvest, but the rough dry bark of the trees is not such a barren waste as it seems. The amount of animal food in the shape of minute insects, eggs, and larvæ tucked away in cracks and crevices must be considerable, and, by dint of incessant peeping and prying into every seam and break in the bark, they get fuel enough to keep their delicate machinery going.

The brown creeper, with his long, slender, decurved bill, secures what the chickadee, with his

NEW GLEANINGS IN OLD FIELDS

short, straight bill, fails to get. The creeper works the trunk of the tree from the ground up in straight or in spiral lines, disappearing quickly round the trunk if he scents danger. He is more assimilatively colored than any of his winter congeners, being like a bit of animated bark itself in form and color, hence his range and movements are more limited and rigid than those of the woodpeckers and chickadees. The creeper is emphatically a tree-trunk bird. His enemies are shrikes and hawks, and the quickness with which he will dart around the trunk or flash away to another trunk shows what the struggle for life has taught his race.

The range of the nuthatch is greater than that of the creeper, in that he takes in more of the branches of the tree. He is quite conspicuously colored in his suit of black, light gray, blue, and white, and his power of movement is correspondingly varied. His bill is straight and heavier, and has an upward slant with the angle of the face that must serve him some useful purpose. He navigates the tree-trunks up and down and around, always keeping an eye on every source of danger in the air about him. I have never seen a nuthatch molested or threatened by any bird of prey, but his habitual attitude of watchfulness while exploring the tree-trunks, with head bent back and beak pointing out at right angles, shows clearly what the experience of his race has taught him. Danger evidently lurks in that direction, and black and

NEW GLEANINGS IN OLD FIELDS

white and blue are revealing colors in the neutral woods. But, however much the nuthatch may be handicapped by its coloration, it far outstrips the creeper in range and numbers. Its varied diet of nuts and insects no doubt gives it a more vigorous constitution, and makes it more adaptive. It is the vehicle of more natural life and energy.

How winter emphasizes the movements of wild life! The snow and the cold are the white paper upon which the print is revealed. A track of a mouse, a bird, a squirrel, or a fox shows us at a glance how the warm pulse of life defies the embargo of winter. From cracks and rents in the frigid zone which creep down upon us at this season there issue tiny jets of warm life which play about here and there as if in the heyday of summer. The woods snap and explode with the frost, the ground is choked with snow, no sign of food is there for bird or beast, and yet here are these tiny bundles of cheer and contentment in feathers — the chickadees, the nuthatches, and their fellows.

EACH AFTER ITS KIND

HOW sharply most forms of life are differentiated! The die that stamps each of them is deeply and clearly cut. As I sit here in my bush camp under the apple-trees, I see a chipmunk spinning up the stone wall a few yards away. His alert eye spies me, and he pauses, sits up a few moments, washes his face with that hurried movement of his paws over it, then hesitates, turns, and goes spinning back down the stone fence. He seems to sniff danger in me. He is living his life, he has a distinct sphere of activity; in this broad, rolling landscape he is a little jet of vital energy that has a character and a purpose of its own; it is unlike any other. How unlike the woodchuck in the next field, creeping about the meadow, storing up his winter fuel as fat in his own flabby body, or the woodpecker on the apple-tree, or the noisy crow flying by overhead! Each is a manifestation of the psychic principle in organic nature, but each is an individual expression of it. The chemistry and the physics of their lives are the same, but how different the impressions they severally make upon us! Life is infinitely various in its forms and activities, though living things all be made of one stuff.

EACH AFTER ITS KIND

Soon after the chipmunk there appears a red squirrel going down the wall — half-brother to the chipmunk but keyed to a much higher degree of intensity. He moves in spasms and sallies and is frisky and impish, where the chipmunk is sedate and timid. His arboreal life requires different qualities and powers; he rushes through the tree-tops like a rocket; he travels on bridges of air; he is nearly as much at home amid the branches as are the birds, much more so than is the flying squirrel, which has but one trick, while the red squirrel has a dozen. That facile tail, now a cockade, now a shield, now an air-buoy; that mocking dance, those derisive snickers and explosions; those electric spurts and dashes — what a character he is — the very Puck of the woods!

Yesterday a gray squirrel came down the wall from the mountain — a long, softly undulating line of silver-gray; unhurried, alert, but not nervous, pausing now and then, but striking no attitudes; silent as a shadow and graceful as a wave — the very spirit of the tall, lichen-covered birches and beeches of the mountain-side. When food is scarce in the woods he comes to the orchards and fields for insects and wild fruit, and any chance bit of food he can pick up. What a contrast he makes to the pampered town squirrel, gross in form and heavy in movement! The town squirrel is the real rustic, while the denizen of the woods has the grace and

EACH AFTER ITS KIND

refinement. Domestication, or semi-domestication, coarsens and vulgarizes the wild creatures; only in the freedom of their native haunts do they keep the beauty and delicacy of form and color that belong to them.

A nuthatch comes upon the apple-tree in front of me, uttering now and then his soft nasal call, and runs up and down and round the trunk and branches, his boat-shaped body navigating the rough surfaces and barely touching them. Every moment or two he stops and turns his head straight out from the tree as if he had an extra joint in his neck. Is he on the lookout for danger? He pecks a little now and then, but most of the food he is in quest of seems on the surface and is very minute. A downy woodpecker comes upon the same tree. His movements are not so free as those of the nuthatch. He does not go head foremost down the tree; his head is always pointed upward. He braces and steadies himself with his tail, which has stiff spines at the ends of the quills. By a curious gymnastic feat he drops down the trunk inch by inch, loosing his hold for a moment and instantly recovering it. He cannot point his beak out at right angles to the tree as can the nuthatch. In fact, he is not a tree-creeper, but a wood-pecker, and can penetrate fairly hard wood with his beak. His voice has a harsh, metallic ring compared with that of the soft, child-like call of the nuthatch. His only contribution to

EACH AFTER ITS KIND

the music of the spring is his dry-limb drum with which he seeks to attract his mate when the love passion is upon him.

Oh, these wild creatures! How clear-cut, how individual, how definite they are! While every individual of a species seems stamped with the same die, the species themselves, even in closely allied groups, are as distinct and various in their lineaments and characteristics as we can well conceive. Behold the order of rodents, including the squirrels, the hares, the rabbits, the woodchucks, the prairie-dogs, the rats and mice, the porcupines, the beavers — what diversity amid the unity, what unlikeness amid the sameness! It makes one marvel anew at the ingenuity and inventiveness of Nature — some living above ground, some below, some depending upon fleetness of foot and keenness of eye for safety, some upon dens and burrows always near at hand; the porcupine upon an armor of barbed quills, the beaver upon his dam and his sharpness of sense. If they all descended from the same original type-form, how that form has branched like a tree in the fields — dividing and dividing and dividing again! But the likeness to the tree fails when we consider that no two branches are alike; in fact, that they are as unlike as pears and peaches and apples and berries and cherries would be on the same tree — all of the same family, but diverging widely in the species.

EACH AFTER ITS KIND

The ground-dwellers, such as woodchucks and prairie-dogs and gophers, have many similar habits, as have the tree-dwellers and the hares and rabbits. That any of these rodent groups will branch again and develop a new species is in harmony with the doctrine of evolution. But these evolutionary processes are so slow that probably the whole span of human history would be inadequate to measure one of them.

Nearly all the animal forms that we know are specialized forms, like our tools and implements — shaped for some particular line of activity. Man is the most generalized of animals; his organization opens to him many fields of activity. The woodpecker must peck for his food, the kingfisher must dive, the flycatcher must swoop, the hawk must strike, the squirrel must gnaw, the cat must spring, the woodcock must probe, the barnyard fowls must scratch, and so on, but man is not thus limited. His hands are tools that can be turned to a thousand uses. They are for love or war, to caress or to smite, to climb or to swim, to hurl or to seize, to delve or to build.

The organization of most animals has special reference to their mode of getting a living. That is the dominant need, and stamps itself upon every organism.

Man is a miscellaneous feeder and a world-wide traveler, hence all climes and conditions are his.

EACH AFTER ITS KIND

He is at home in the arctics or the tropics, on the sea, on the land, and in the air; a fruit-eater, a grain-eater, a flesh-eater, a nut-eater, an herb-eater; his generalized anatomy and his diversified mentality make the whole earth his dwelling-place, and all its thousands of treasure-houses are made available for his needs.

What diversity in unity among the hawks! Contrast these two familiar species which are nearly of a size—the marsh hawk and the hen, or red-tailed, hawk. The marsh hawk has the longer tail, and the back of the male is bluish-gray. We see it in summer beating up and down, low over the fields and meadows, its attention fixed upon the ground beneath it. At the same time we may see the hen-hawk soaring aloft, sweeping leisurely around in great circles, or climbing higher in easy spirals, apparently abandoning itself to the joy of its aerial freedom. The hen-hawk is a bird of leisure in contrast with its brother of the marshes. We rarely see it hunting; it is either describing its great circles against the sky, apparently in the same mood that the skater is in who cuts his circles and figures upon the ice; or else it sits perched like a statue high up on some dead branch in the edge of the forest, or on some tree by the roadside, and sees the summer hours go by. Solitude, contemplation, a sense of freedom, seem to be its chief delight, while we rarely see the marsh hawk except when it is intent

EACH AFTER ITS KIND

upon its game. It haunts the fields and meadows over a wide area like a spirit, up and down and around and across it goes, only a few feet above the ground, eyeing sharply every yard of surface beneath it, now and then dropping down into the grass, never swooping or striking savagely, but halting and alighting rather deliberately, evidently not in pursuit of a bird, but probably attracted by field mice. The eye follows its course with pleasure; such industry, such ease of movement, such deliberation, such a tireless quest over the summer fields — all contribute to make a picture which we look upon with interest. It is usually the female which we see on such occasions; she is larger and darker in color than the male, and apparently upon her falls the main support of the family. Said family is usually composed of three or four young in a nest upon the ground in a marsh, where it is not easy for the pedestrian to reach. The hunting habits of the hen-hawk are quite different. It subsists largely, not upon hens or poultry as its name would seem to indicate, but upon field mice and other small rodents, which it swoops down upon from a point in the air above them, where it hovers a moment on beating wing, or from the top of some old stub or dry branch in the meadow. Its nest is usually placed fifty or more feet from the ground in some large forest tree, and is made of dry twigs and branches. I have found but one marsh hawk's nest, and not more

EACH AFTER ITS KIND

than once in twenty years do I find the nest of a hen-hawk.

Two species of our smaller hawks present about as sharp a contrast as do the two I have just described — the sparrow hawk and the pigeon hawk. It is very doubtful if the sparrow hawk ever kills sparrows, its food being largely insects, though the pigeon hawk is not above killing pigeons — at least of pursuing them with murderous intent. It is the terror of the smaller birds, capturing robins, high-holes, bluebirds, thrushes, and almost any other it can get its claws upon. If you see a small bird hotly pursued by a brown hawk, the chances are that it is the song or field sparrow making desperate efforts to reach the cover of some bush or tree. On such occasions I have seen the pursued bird take refuge in a thorn-bush the branches of which had been cropped by the cattle till they were so thick and thorny that you could hardly insert your hand among them. In such cases the hawk is, of course, defeated, but he will beat about the bush spitefully in his vain attempts to dislodge his game.

The sparrow hawk is the prettiest of our hawks, and probably the most innocent. One midsummer when I was a boy on the old farm we had a sudden visitation of sparrow hawks; there must have been at least fifty about the old meadow at one time, alighting upon the fence-stakes or hovering on the wing above the grass and swooping down upon the

EACH AFTER ITS KIND

big, fat grasshoppers. It was a pretty sight and unusual, as I have witnessed it only once in my life.

Our birds often differ in their habits much more than in their forms and colors. We have two fly-catchers singularly alike in general appearance — namely, the phœbe-bird and the wood pewee — which differ widely in their habits of life. The phœbe is the better known because she haunts our porches and sheds and bridges, and not infrequently makes herself a nuisance from the vermin with which her nest, especially her midsummer nest, often swarms. She is an early-spring bird, and her late March or early April call, repeating over and over the name by which she is known, is a sound that every country boy delights in. The wood pewee is a little less in size, but in form and color and manners is almost the duplicate of phœbe. She is a much later arrival, and need not be looked for till the trees begin to turn over their new leaves. Then you may hear her tender, plaintive cry amid the forest branches — also a repetition of her own name, but with a sylvan cadence and tenderness peculiarly its own. It differs from the phœbe's note just as the leafy solitudes of the woods differ from the strong, open light and the fence-stakes and ridge-boards where the phœbe loves to perch. It is the voice or cry of a lonely, yearning spirit, attuned to great sweetness and tenderness. The phœbe has not arrested the attention of any of our poets, but the pewee has inspired

EACH AFTER ITS KIND

at least one fine woodsy poem. I refer to Trowbridge's "Pewee."

The nesting-habits of the two birds differ as widely as do their songs. The phoebe is an architect who works with mud and moss, using the latter in a truly artistic way, except when she is tempted, as she so often is, to desert the shelving rocks by the waterfalls, or along the brows of the wooded slopes, for the painted porches of our houses or the sawed timbers of our outbuildings, where her moss is incongruous and gives away the secret she so carefully seeks to guard. You cannot by any sleight-of-hand, or of beak, use moss on a mud nest so as to blend it with a porch or timber background. But in the niches of the mossy and lichen-covered overhanging rocks of the gorges and mountain-sides, where her forbears practiced the art of nest-building, and where she still often sets up her "procreant cradle," what in the shape of a nest can be more pleasing and exquisite than her moss-covered structure? It is entirely fit. It is Nature's own handiwork, and thoroughly in the spirit of the shelving rocks.

The pewee uses no mud and no moss. She uses lichens and other wild, woodsy things, and her nest is one of the most trim and artistic of wild-bird structures; it is as finished and symmetrical as an acorn-cup. It is cup-shaped, and sits upon a horizontal branch of beech or maple as if it were a grown

EACH AFTER ITS KIND

part of the tree — not one loose end or superfluous stroke about it.

Two other species of our flycatchers, the kingbird and the great crested, differ in form and coloration as much as they do in life-habits — the kingbird being rather showily clad in black, gray, and white, with a peculiar, affected, tip-wing flight, and haunting the groves and orchards, while the great crested flycatcher is rufous or copper-colored, with a tinge of saffron-yellow, haunting the woods and building its nest in a cavity in a tree, occasionally in orchards.

Nature repeats herself with variations in two of our sparrows — the song sparrow, and the vesper sparrow, or grass finch. The latter is a trifle the larger and of a lighter mottled gray-and-brown color, and has certain field habits, such as skulking or running in the grass and running along the highway in front of your team. It does not wear the little dark-brown breastpin that the song sparrow does, and it has two lateral white quills in its tail which are conspicuous when it flies. Its general color, and these white quills, suggest the skylark, and it was doubtless these features that led a male lark which once came to me from overseas, and which I liberated in a wide field near home, to pay court to the vesper and to press his suit day after day, to the obvious embarrassment of the sparrow.

The song sparrow is better known than the vesper

EACH AFTER ITS KIND

to all country people, because it lives nearer our dwellings. It is an asset of every country garden and lawn and near-by roadside, and it occasionally spends the winter in the Hudson River Valley when you have, carelessly or thoughtfully, left a harvest of weed-seeds for it to subsist upon. It comes before the vesper in the spring, and its simple song on a bright March or April morning is one of the most welcome of all vernal sounds. In its manners it is more fussy and suspicious than the vesper, and it worries a great deal about its nest if one comes anywhere in its vicinity. It is one of the familiar, half-domesticated birds that suggest home to us wherever we see it.

The song sparrow is remarkable above any other bird I know for its repertoire of songs. Few of our birds have more than one song, except in those cases when a flight song is added during the mating season, as with the oven-bird, the purple finch, the goldfinch, the meadowlark, and a few others. But every song sparrow has at least five distinct songs that differ from one another as much as any five lyrics by the same poet differ. The bird from its perch on the bush or tree will repeat one song over and over, usually five or six times a minute, for two or three minutes, then it will change to another strain quite different in time and measure, and repeat it for a dozen or more times; then it drops into still another and yet another and another, each

EACH AFTER ITS KIND

song standing out distinctly as a new combination and sequence of sparrow notes. And a still greater wonder is that no two song sparrows have the same repertoire. Each bird has his own individual songs, an endless and bewildering variety inside a general resemblance. The song sparrow you hear in Maine or Canada differs widely from the one you hear in the Hudson River Valley or on the Potomac. Even in the same neighborhood I have never yet heard two sparrows whose songs were exactly alike, whereas two robins or meadowlarks or bluebirds or wood thrushes or vesper sparrows or goldfinches or indigo-birds differ from one another in their songs as little as they do in their forms and manners, and from one end of the country to the other there is little or no variation.

During ten days by the sea one July I was greatly entertained by a song sparrow which had a favorite perch on the top of a small red cedar that stood in front of the cottage where I was staying. Four fifths of the day at least it was perched upon this little cedar platform, going through its repertoire of song, over and over. Getting its living seemed entirely a secondary matter; the primary matter was the song. I estimated that it sang over two thousand times each day that I heard it. It had probably been singing at the same rate since May or earlier, and would probably keep it up till August or later. The latter part of July and the whole of August of the same

EACH AFTER ITS KIND

season I spent at Woodchuck Lodge in the Catskills, and across the road in front of the porch there, on the top of an old plum-tree, a song sparrow sang throughout the greater part of each summer day, as did the one by the sea, going through its repertoire of five or six songs in happy iteration. It, too, sang about three hundred times an hour, and nearly always from the same perch, and, as most assuredly was the case with the seaside bird, singing within earshot of its brooding mate. But its songs bore only the most remote general resemblance to those of its seaside brother. When, early in August, the mowing-machine laid low the grass in the meadow on the edge of which the old plum-tree stood, the singer behaved as if some calamity had befallen him, as no doubt there had. He disappeared from his favorite perch, and I heard him no more except at long intervals below the hill in another field.

The vesper sparrow has a wilder and more pleasing song than the song sparrow, but has no variety; so far as my ear can judge, it has only the one sweet, plaintive strain in which it indulges while perched upon a stone or boulder or bare knoll in a hill pasture or by a remote roadside. The charm of its song is greatly enhanced by the soft summer twilight in which it is so often uttered; it sounds the vespers of the fields. The vesper sparrow is invariably a ground-builder, placing its nest of dry grass in the open with rarely a weed or tuft of grass to mark its site.

EACH AFTER ITS KIND

Hence its eggs or young often fall victims to the sharp-eyed, all-devouring crows, as they lead their clamorous broods about the summer pastures. The song sparrow more frequently selects its nesting-place in a grassy or mossy bank by the roadside or in the orchard, when it does not leave the ground to take to a low bush or tangle of vines on the lawn, as it so frequently does.

We have two other sparrows that are close akin — indeed, almost like fruit on the same tree — yet with clear-cut differences. I refer to the “chippie,” or social sparrow, and the field, or, as I prefer to call it, the bush sparrow — two birds that come so near being duplicates of each other that in my boyhood I recognized only the one species, the chipping sparrow, so much at home in the orchard and around the dooryard. Few country persons, I fancy, discriminate the two species. They are practically of the same size and same manners, but differ in color. The bush sparrow is more russet, has a russet beak and feet and legs, and its general appearance harmonizes more with country surroundings. The two species differ in about the same way that the town-dweller differs from his rustic brother. But in the matter of song there is no comparison — the strain of the bush sparrow being one of the most tender and musical of all our sparrow songs, while that of the “chippie,” or the hair-bird, as it is often called, is a shuffling repetition of a single unmusical

EACH AFTER ITS KIND

note. The wild scenes and field solitudes are reflected in the bush sparrow's song, while that of the chippie is more suggestive of the sights and sounds near the haunts of men. The pure, plaintive, child-like strain of the bush sparrow — a silver scroll of tender song — heard in the prophetic solitude of the remote fields on a soft April or May morning is to me one of the most touching and pleasing bits of bird-music to be heard in the whole round year.

The swarms of small sparrows that one sees in August and September in the vineyards and along the bushy highways are made up mostly of bush sparrows. There is a little doubt but that these birds at times peck and haggle the grapes, which "Chippie" never does. The bush sparrow builds the more compact and substantial nest, using more dry grass and weedy growths, and less horsehair. It is the abundant use of hair that has given "Chippie" the name of the hair-bird.

The hair-bird appears the more strikingly dressed of the two. Its black beak and legs, the darker lines on its plumage, the well-defined, brick-red patch on its head easily separate it to the careful observer from the other species. When you have learned quickly to discriminate these two kinds of sparrows, you have made a good beginning in conquering the bird kingdom.

NATURE LEAVES

I. IN WARBLER TIME

THIS early May morning, as I walked through the fields, the west wind brought to me a sweet, fresh odor, like that of our little white sweet violet (*Viola blanda*). It came probably from sugar maples, just shaking out their fringelike blossoms, and from the blooming elms. For a few hours, when these trees first bloom, they shed a decided perfume. It was the first breath of May, and very welcome. April has her odors, too, very delicate and suggestive, but seldom is the wind perfumed with the breath of actual bloom before May. I said, It is warbler time; the first arrivals of the pretty little migrants should be noted now. Hardly had my thought defined itself, when before me, in a little hemlock, I caught the flash of a blue, white-barred wing; then glimpses of a yellow breast and a yellow crown. I approached cautiously, and in a moment more had a full view of one of our rarer warblers, the blue-winged yellow warbler. Very pretty he was, too, the yellow cap, the yellow breast, and the black streak through the eye being conspicuous features. He would not stand to be looked at long, but soon disappeared in a near-by tree.

NATURE LEAVES

The ruby-crowned kinglet was piping in an ever-green tree not far away, but him I had been hearing for several days. With me the kinglets come before the first warblers, and may be known to the attentive eye by their quick, nervous movements, and small, olive-gray forms, and to the discerning ear by their hurried, musical, piping strains. How soft, how rapid, how joyous and lyrical their songs are! Very few country people, I imagine, either see them or hear them. The powers of observation of country people are seldom fine enough and trained enough. They see and hear coarsely. An object must be big and a sound loud, to attract their attention. Have you seen and heard the kinglet? If not, the finer inner world of nature is a sealed book to you. When your senses take in the kinglet they will take in a thousand other objects that now escape you.

My first warbler in the spring is usually the yellow redpoll, which I see in April. It is not a bird of the trees and woods, but of low bushes in the open, often alighting upon the ground in quest of food. I sometimes see it on the lawn. The last one I saw was one April day, when I went over to the creek to see if the suckers were yet running up. The bird was flitting amid the low bushes, now and then dropping down to the gravelly bank of the stream. Its chestnut crown and yellow under parts were noticeable.

The past season I saw for the first time the golden-

NATURE LEAVES

winged warbler — a shy bird, that eluded me a long time in an old clearing that had grown up with low bushes. The song first attracted my attention, it is so like in form to that of the black-throated green-back, but in quality so inferior. The first distant glimpse of the bird, too, suggested the green-back, so for a time I deceived myself with the notion that it was the green-back with some defect in its vocal organs. A day or two later I heard two of them, and then concluded my inference was a hasty one. Following one of the birds up, I caught sight of its yellow crown, which is much more conspicuous than its yellow wing-bars. Its song is like this, 'n-'n *de de de*, with a peculiar reedy quality, but not at all musical, falling far short of the clear, sweet, lyrical song of the green-back. Nehrling sees in it a resemblance to that of the Maryland yellow-throat, but I fail to see any resemblance whatever.

One appreciates how bright and gay the plumage of many of our warblers is when he sees one of them alight upon the ground. While passing along a wood road in June, a male black-throated green came down out of the hemlocks and sat for a moment on the ground before me. How out of place he looked, like a bit of ribbon or millinery just dropped there! The throat of this warbler always suggests the finest black velvet. Not long after I saw the chestnut-sided warbler do the same thing. We were trying to make it out in a tree by the roadside, when it

NATURE LEAVES

dropped down quickly to the ground in pursuit of an insect, and sat a moment upon the brown surface, giving us a vivid sense of its bright new plumage.

When the leaves of the trees are just unfolding, or, as Tennyson says,

“When all the woods stand in a mist of green,
And nothing perfect,”

the tide of migrating warblers is at its height. They come in the night, and in the morning the trees are alive with them. The apple-trees are just showing the pink, and how closely the birds inspect them in their eager quest for insect food! One cold, rainy day at this season Wilson's black-cap — a bird that is said to go north nearly to the Arctic Circle — explored an apple-tree in front of my window. It came down within two feet of my face, as I stood by the pane, and paused a moment in its hurry and peered in at me, giving me an admirable view of its form and markings. It was wet and hungry, and it had a long journey before it. What a small body to cover such a distance!

The black-poll warbler, which one may see about the same time, is a much larger bird and of slower movement, and is colored much like the black and white creeping warbler with a black cap on its head. The song of this bird is the finest in volume and most insectlike of that of any warbler known to me. It is the song of the black and white creeper reduced, high and swelling in the middle and low and faint

NATURE LEAVES

at its beginning and ending. When one has learned to note and discriminate the warblers, he has made a good beginning in his ornithological studies.

II. A SHORT WALK

One midsummer afternoon I went up to "Scotland" and prowled about amid the raspberry-bushes, finding a little fruit, black and red, here and there, and letting my eyes wander to the distant farms and mountains. The wild but familiar prospect dilated and rested me. As I lingered near the torn edge of the woods in a tangle of raspberry-bushes, I caught a glimpse of some large bird dropping suddenly to the ground from a tall basswood that stood in the edge of the open, where it was hidden from my view. Was it a crow or a hawk? A hawk, I guessed, from its manner of descent. I threw a stone after waiting some moments for it to reappear, but it made no sign. Then I moved slowly toward the spot, and presently up sprang a hen-hawk and, uttering its characteristic squeal, circled around near me and then alighted not far off. A young hawk, I saw it was, and quite unsophisticated. Presently, as I made my way along, just touching the edge of the woods, a covey of nearly full-grown partridges burst up out of the berry-bushes, ten or twelve of them, and went humming up into the denser woods, some of them alighting in the trees, whence they stretched their necks to watch me as I passed along. The dust

NATURE LEAVES

flew from their plumage as they jumped up, as if they had been earthing their wings.

My next adventure was with a young but fully grown bluebird, which crawled and fluttered away from my feet as I came upon it in the open. It could not fly, and I easily picked it up. Its plumage showed the mingled blue and speckled brown of the immature bird. I looked it over, but could see no mark or sign of injury to wing or body. Its plumage was unruffled and its eye bright, but its movements were feeble. Was it ill or starved? I could not tell which, probably the latter. It may have got lost from the brood and was not yet able to forage for itself. I left it under the edge of a rock, where the fresh blue of the ends of its wings and tail held my eye a moment as I turned to go.

Farther along, under some shelving rocks, I came upon two empty phœbes' nests — a relic of bird-life that always gives a touch to the rocks that I delight in. I find none of these nests placed lower than three feet from the ground, and always in places that seem to be carefully chosen with reference to enemies that can reach and climb.

Two or three woodchucks, which I bagged with my eye, completed my afternoon's adventures.

IN FIELD AND WOOD

I. INTENSIVE OBSERVATION

THE casual glances or the admiring glances that we cast upon nature do not go very far in making us acquainted with her real ways. Only long and close scrutiny can reveal these to us. The look of appreciation is not enough; the eye must become critical and analytical if we would know the exact truth.

Close scrutiny of an object in nature will nearly always yield some significant fact that our admiring gaze did not take in. I learned a new fact about the teazel the other day by scrutinizing it more closely than I had ever before done; I discovered that the wave of bloom begins in the middle of the head and spreads both ways, up and down, whereas in all other plants known to me with flowering heads or spikes, except the goldenrod and the steeplebush, the wave of bloom begins at the bottom and creeps upward like a flame. In the goldenrod it drops down from branch to branch. In vervain, in blueweed, in Venus' looking-glass, in the mullein, in the evening-primrose, and others, the bloom creeps slowly upward from the bottom.

IN FIELD AND WOOD

But with the teazel the flame of bloom is first kindled in the middle; to-day you see the head with this purple zone or girdle about it, and in a day or two you see two purple girdles with an open space between them, and these move, the one up and the other down, till the head stands with a purple base and a purple crown with a broad space of neutral green between them.

This is a sample of the small but significant facts in nature that interest me — exceptional facts that show how nature at times breaks away from a fixed habit, a beaten path, so to speak, and tries a new course. She does this in animal life too.

Huxley mentions a curious exception to the general plan of the circulation of the blood. In all animals that have a circulation the blood takes one definite and invariable direction except in the case of one class of marine animals, called ascidians; in them the heart, after beating a certain number of times, stops and begins to beat the opposite way, so as to reverse the current; then in a moment or two it changes again and drives the blood in the other direction.

All things are possible with nature, and these unexpected possibilities or departures from the general plan are very interesting. It is interesting to know that any creature can come into being without a father, but with only a grandfather, yet such is the case. The drone in the hive has no father; the

IN FIELD AND WOOD

eggs of the unfertilized queen produce drones — that is, in producing males, the male is dispensed with. It is to produce the neuters or the workers that the service of the male is required. The queen bee is developed from one of these neuter eggs, hence her male offspring have only a grandfather.

The chipmunk is an old friend of my boyhood and my later years also, but by scrutinizing his ways a little more closely than usual the past summer I learned things about this pretty little rodent that I did not before know. I discovered, for instance, that he digs his new hole for his winter quarters in midsummer.

In my strolls afield or along the road in July I frequently saw a fresh pile of earth upon the grass near a stone fence, or in the orchard, or on the edge of the woods — usually a peck or two of bright, new earth carefully put down in a pile upon the ground without any clue visible as to where it probably came from. But a search in the grass or leaves usually disclosed its source — a little round hole neatly cut through the turf and leading straight downward. I came upon ten such mounds of earth upon a single farm, and found the hole from which each came, from one to six feet away. In one case, in a meadow recently mowed, I had to explore the stubble with my finger over several square yards of surface before I found the squirrel's hole, so undisturbed was the grass around it; not a grain of soil

IN FIELD AND WOOD

had the little delver dropped near it, and not the slightest vestige of a path had he made from the tunnel to the dump.

And this feature was noticeable in every case; the hole had been dug several yards under ground and several pecks of fresh earth removed to a distance of some feet without the least speck of soil or the least trace of the workman's footsteps showing near the entrance; such clean, deft workmanship was remarkable. All this half-bushel or more of earth the squirrel must have carried out in his cheek pockets, and he must have made hundreds of trips to and fro from his dump to his hole, and yet if he had flown like a bird the turf could not have been freer from the marks of his going and coming; and he had cut down through the turf as one might have done with an auger, without bruising or disturbing in any way the grass about the edges. It was a clean, neat job in every case, so much so that it was hard to believe that the delver did not come up from below and have a back door from whence he carried his soil some yards away.

Indeed, I have heard this theory stated. "Look under the pile of earth," said a friend who was with me and who had observed the work of the pocket gopher in the West, "and you will find the back door there." But it was not so. I carefully removed four piles of earth and dug away the turf beneath them, and no hole was to be found.

IN FIELD AND WOOD

One day we found a pile of earth in a meadow, and near it a hole less than two inches deep, showing where the chipmunk had begun to dig and had struck a stone; then he went a foot or more up the hill and began again; here he soon struck stones as before, then he went still farther up the hill, and this time was successful in penetrating the soil. This was conclusive proof that these round holes are cut from above and not from below, as we often see in the case of the woodchuck-hole. The squirrel apparently gnaws through the turf, instead of digging through, and carries away the loosened material in his mouth, never dropping or scattering a grain of it. No home was ever built with less litter, no cleaner dooryard from first to last can be found.

The absence of anything like a trail or beaten way from the mound of earth to the hole, or anything suggesting passing feet, I understood better when, later in the season, day after day I saw a chipmunk carrying supplies into his den, which was in the turf by the roadside about ten feet from a stone wall. He covered the distance by a series of short jumps, apparently striking each time upon his toes between the spears of grass, and leaving no marks whatever by which his course could be traced. This was also his manner of leaving the hole, and doubtless it was his manner in carrying away the soil from his tunnel to the dumping-pile. He left no sign upon

IN FIELD AND WOOD

the grass, he disturbed not one spear about the entrance.

There was a mystery about this den by the roadside of which I have just spoken — the pile of earth could not be found; unless the roadmaker had removed it, it must have been hidden in or beneath the stone wall.

And there was a mystery about some of the other holes that was absolutely baffling to me. In at least four mounds of fresh earth I found freshly dug stones that I could not by any manipulation get back into the hole out of which they had evidently come. They were all covered with fresh earth, and were in the pile of soil with many other smaller stones. In one case a stone two inches long, one and one half inches broad, and one half inch thick was found. In two other cases stones of about the same length and breadth but not so thick were found, and in neither case could the stone be forced into the hole. In still another case the entrance to the den was completely framed by the smaller roots of a beech-tree, and in the little mound of earth near it were two stones that could only be gotten back into the hole by springing one of these roots, which required considerable force to do. In two at least of these four cases it was a physical impossibility for the stones to have come out of the hole from whence the mound of earth and the lesser stones evidently came, yet how happened they in the pile of earth

IN FIELD AND WOOD

freshly earth-stained? The squirrel could not have carried them in his cheek pouches, they were so large; how, then, did he carry them?

The matter stood thus with me for some weeks; I was up against a little problem in natural history that I could not solve. Late in November I visited the scene of the squirrel-holes again, and at last got the key to the mystery: the cunning little delver cuts a groove in one side of the hole just large enough to let the stone through, then packs it full of soil again. When I made my November visit it had been snowing and raining and freezing and thawing, and the top of the ground was getting soft. A red squirrel had visited the hole in the orchard where two of the largest stones were found in the pile of earth, and had apparently tried to force his way into the chipmunk's den. In doing so he had loosened the earth in the groove, softened by the rains, and it had dropped out. The groove was large enough for me to lay my finger in and just adequate to admit the stones into the hole. This, then, was the way the little engineer solved the problem, and I experienced a sense of relief that I had solved mine.

I visited the second hole where the large stone was in the pile of earth, and found that the same thing had happened there. A red squirrel, bent on plunder, had been trying to break in, and had removed the soil in the groove.¹

¹ I feel bound to report that the next season I found a pile

IN FIELD AND WOOD

To settle the point as to whether or not the chipmunk has a back door, which in no case had I been able to find, we dug out the one by the roadside, whose mound of earth we could not discover. We followed his tortuous course through the soil three or four feet from the entrance and nearly three feet beneath the surface, where we found him in his chamber, warm in his nest of leaves, but not asleep. He had no back door. He came out (it was a male) as a hand was thrust into his chamber, and the same fearless, strong hand seized him, but did not hurt him. His chamber was spacious enough to hold about four quarts of winter stores and leave him considerable room to stir about in. His supplies consisted of the seeds of the wild buckwheat (*Polygonum dumetorum*) and choke-cherry pits, and formed a very unpromising looking mess. His buckwheat did not seem to have been properly cured, for much of it was mouldy, but it had been carefully cleaned, every kernel of it. There were nearly four quarts of seeds altogether, and over one half of it was wild buckwheat. I was curious to know approximately the number of these seeds he had gathered and shucked. I first found the number it took to fill a lady's thimble, and then the number of thimbles

of earth which a chipmunk had removed from his den, containing a stone too large to go into the hole, yet the most careful examination failed to reveal that there had ever been any groove cut in it, or that it had ever been in any way enlarged.

IN FIELD AND WOOD

full it took to fill a cup, and so reached the number in the two quarts, and found that it amounted to the surprising figure of 250,000.

Think of the amount of patient labor required to clean 250,000 of the small seeds of the wild buckwheat! The grains are hardly one third the size of those of the cultivated kind and are jet black when the husk is removed. Probably every seed was husked with those deft little hands and teeth as it was gathered, before it went into his cheek pockets, but what a task it must have been!

Poor little hermit, it seemed pathetic to find him facing the coming winter there with such inferior stuff in his granary. Not a nut, not a kernel of corn or wheat. Why he had not availed himself of the oats that grew just over the fence I should like to know. Of course, the wild buckwheat must have been more to his liking. How many hazardous trips along fences and into the bushes his stores represented! The wild creatures all live in as savage a country as did our earliest ancestors, and the enemy of each is lying in wait for it at nearly every turn.

Digging the little fellow out, of course, brought ruin upon his house, and I think the Muse of Natural History contemplated the scene with many compunctions of conscience,—if she has any conscience, which I am inclined to doubt. But our human hearts prompted us to do all we could to give the provident little creature a fresh start; we put his

IN FIELD AND WOOD

supplies carefully down beside the stone wall into which he had disappeared on being liberated, and the next day he had carried a large part of them away. He evidently began at once to "hustle," and I trust he found or made a new retreat from the winter before it was too late.

I doubt if the chipmunk ever really hibernates; the hibernating animals do not lay up winter stores, but he no doubt indulges in many very long before-dinner and after-dinner naps. It is blackest night there in his den three feet under the ground, and this lasts about four months, or until the premonitions of coming spring reach him in March and call him forth.

I am curious to know if the female chipmunk also digs a den for herself, or takes up with one occupied by the male the previous winter.

One ought to be safe in generalizing upon the habits of chipmunks in digging their holes, after observing ten of them, yet one must go slow even then. Nine of the holes I observed had a pile of earth near them; the tenth hole had no dump that I could find. Then I found four holes with the soil hauled out and piled up about the entrance precisely after the manner of woodchucks. This was a striking exception to the general habit of the chipmunk in this matter. "Is this the way the female digs her hole," I asked myself, "or is it the work of young chipmunks?"

I have in two cases found holes in the ground on

IN FIELD AND WOOD

the borders of swamps, occupied by weasels, but the holes were in all outward respects like those made by chipmunks, with no soil near the entrance. The woodchuck makes no attempt to conceal his hole by carrying away the soil; neither does the prairie-dog, nor the pocket gopher. The pile of telltale earth in each case may be seen from afar, but our little squirrel seems to have notions of neatness and concealment that he rarely departs from. The more I study his ways, the more I see what a clever and foxy little rodent he is.

II. FROM A WALKER'S WALLET

I

On the morning after our first hard frost in late October or early November how rapidly the leaves let go their hold upon their parent stems! I stood for some minutes one such morning under a maple by the roadside to witness the silent spectacle. The leaves came down one by one like great golden flakes; there was no motion in the air to loosen them; their hour had come, and they gave up life easily and gracefully.

What a gay company they had made on that tree all summer, clapping their hands in gladness, and joyously drinking in the air and the sunshine, whispering, rustling, swayed by emotion, or stilled by the night dews, and each and all doing their work! Now

IN FIELD AND WOOD

their day is done, and one by one they let go their hold upon the parent stem, and fall to the earth.

Some come hurrying and tumbling down; some drop almost like clods; some come eddying and balancing down; and now and then one comes down as gracefully as a bird, sailing around in an easy spiral like a dove alighting, its edges turned up like wings, and its stems pointing downward like a head and neck. One can hardly believe it is not a thing of life. It reaches the ground as lightly as a snowflake. If one could only finish his own career as gracefully!

What a contrast to the falling of the leaves of some other trees, say those of the mulberry! The leaves of this tree fall, on such mornings, like soldiers slain in battle with all their powers in full force. They drop heavily and clumsily, apparently untouched by the ripening process that so colors the maple and other leaves. They are rank green and full of sap. So with the locusts, and the apple and cherry leaves; they all seem cut off prematurely.

But the leaves of most of our native trees — oak, ash, hickory, maple — seem to fall in the fullness of time. They have ripened like the grain and the fruit; they are colored like the clouds at sunset; and their demise seems a welcome event. They make the woods and groves gay; they carpet the ground as with sunset clouds; it is a funeral that is like a festival; it is the golden age come back.

The falling of these gayly colored leaves seems to

IN FIELD AND WOOD

make a holiday in nature; it is like the fluttering of ribbons and scarfs; it does not suggest age and decay; it suggests some happy celebration. They seem to augment the sunshine, to diffuse their own color into it, or to give back to it the light they have been so long absorbing. The day itself drops upon the earth like a great golden leaf fallen from the tree of Ygdrasyl.

II

It always gives me a little pleasurable emotion when I see in the autumn woods where the downy woodpecker has just been excavating his winter quarters in a dead limb or tree-trunk. I am walking along a trail or wood-road when I see something like coarse new sawdust scattered on the ground. I know at once what carpenter has been at work in the trees overhead, and I proceed to scrutinize the trunks and branches. Presently I am sure to detect a new round hole about an inch and a half in diameter on the under side of a dead limb, or in a small tree-trunk. This is Downy's cabin, where he expects to spend the winter nights, and a part of the stormy days, too.

When he excavates it in an upright tree-trunk, he usually chooses a spot beneath a limb; the limb forms a sort of rude hood, and prevents the rain-water from running down into it. It is a snug and pretty retreat, and a very safe one, I think. I doubt whether

IN FIELD AND WOOD

the driving snow ever reaches him, and no predatory owl could hook him out with its claw. Near town or in town the English sparrow would probably drive him out; but in the woods, I think, he is rarely molested, though in one instance I knew him to be dispossessed by a flying squirrel.

On stormy days I have known Downy to return to his chamber in mid-afternoon, and to lie abed there till ten in the morning.

I have no knowledge that any other species of our woodpeckers excavate these winter quarters, but they probably do. The chickadee has too slender a beak for such work, and usually spends the winter nights in natural cavities or in the abandoned holes of Downy.

III

As I am writing here in my study these November days, a downy woodpecker is excavating a chamber in the top of a chestnut post in the vineyard a few yards below me, or rather, he is enlarging a chamber which he or one of his fellows excavated last fall; he is making it ready for his winter quarters. A few days ago I saw him enlarging the entrance and making it a more complete circle. Now he is in the chamber itself working away like a carpenter. I hear his muffled hammering as I approach cautiously on the grass. I make no sound and the hammering continues till I have stood for a moment beside the

IN FIELD AND WOOD

post, then it suddenly stops and Downy's head appears at the door. He glances at me suspiciously and then hurries away in much excitement.

How did he know there was some one so near? As birds have no sense of smell it must have been by some other means. I return to my study and in about fifteen minutes Downy is back at work. Again I cautiously and silently approach, but he is now more alert, and when I am the width of three grape rows from him he rushes out of his den and lets off his sharp, metallic cry as he hurries away to some trees below the hill.

He does not return to his work again that afternoon. But I feel certain that he will pass the night there and every night all winter unless he is disturbed. So when my son and I are passing along the path by his post with a lantern about eight o'clock in the evening, I pause and say, "Let's see if Downy is at home." A slight tap on the post and we hear Downy jump out of bed, as it were, and his head quickly fills the doorway. We pass hurriedly on and he does not take flight.

A few days later, just at sundown, as I am walking on the terrace above, I see Downy come sweeping swiftly down through the air on that long galloping flight of his, and alight on the big maple on the brink of the hill above his retreat. He sits perfectly still for a few moments, surveying the surroundings, and, seeing that the coast is clear, drops quickly and

IN FIELD AND WOOD

silently down and disappears in the interior of his chestnut lodge. He will do this all winter long, coming home, when the days are stormy, by four o'clock, and not stirring out in the morning till nine or ten o'clock. Some very cold, blustery days he will probably not leave his retreat at all.

He has no mate or fellow lodger, though there is room in his cabin for three birds at least. Where the female is I can only conjecture; maybe she is occupying a discarded last year's lodge, as I notice there are a good many new holes drilled in the trees every fall, though many of the old ones still seem intact.

During the inclement season Downy is anything but chivalrous or even generous. He will not even share with the female the marrow bone or bit of suet that I fasten on the maple in front of my window, but drives her away rudely. Sometimes the hairy woodpecker, a much larger bird, routs Downy out and wrecks his house. Sometimes the English sparrows mob him and dispossess him. In the woods the flying squirrels often turn him out of doors and furnish his chamber cavity to suit themselves.

IV

I am always content if I can bring home from my walks the least bit of live natural history, as when, the other day, I saw a red-headed woodpecker having a tilt with a red squirrel on the trunk of a tree.

Doubtless the woodpecker had a nest near by, and

IN FIELD AND WOOD

had had some experience with this squirrel as a nest-robber. When I first saw them, the bird was chasing the squirrel around the trunk of an oak-tree, his bright colors of black and white and red making his every movement conspicuous. The squirrel avoided him by darting quickly to the other side of the tree.

Then the woodpecker took up his stand on the trunk of a tree a few yards distant, and every time the squirrel ventured timidly around where he could be seen the woodpecker would swoop down at him, making another loop of bright color. The squirrel seemed to enjoy the fun and to tempt the bird to make this ineffectual swoop. Time and again he would poke his head round the tree and draw the fire of his red-headed enemy. Occasionally the bird made it pretty hot for him, and pressed him closely, but he could escape because he had the inside ring, and was so artful a dodger. As often as he showed himself on the woodpecker's side, the bird would make a vicious pass at him; and there would follow a moment of lively skurrying around the trunk of the old oak; then all would be quiet again.

Finally the squirrel seemed to get tired of the sport, and ran swiftly to the top and off through the branches into the neighboring trees. As this was probably all the woodpecker was fighting for, he did not give chase.

IN FIELD AND WOOD

While I was watching the squirrel and the woodpecker, I discovered a crow's nest with nearly grown young. The parent crow came low over the fence into the grove, and flew to a branch of an oak, and alighted only ten or twelve feet from the ground. Then it flew to a higher branch in another tree, and then to the top of a group of spruces, where I saw one of the young crows rise and take the food. How cautious and artful the whole proceeding was!

One of our latest nature writers pretends to see what the crow brings her young at such times. Had I had the most powerful opera-glasses on this occasion, I could not have told the nature of the morsel she brought in her beak. The thing is done very quickly and deftly, and is not meant for the eye of any onlooker there may chance to be about.

Thus all the little ways and doings of the birds interest me. They are curiously human, while yet they afford glimpses into a new and strange world. We look on; we are interested; we understand; we sympathize; we may lend a hand; we share much in common; one nature mothers us all; our lives run parallel in many respects; similar problems, similar needs, similar fatalities, similar tribulations, come home to us all; and yet we are separated by a gulf, the gulf that lies between conscious, reasoning soul and unconscious, unreasoning instinct. But I must not plunge into the gulf, nor seek to clear it here.

IN FIELD AND WOOD

V

It always amuses me to see in late May a "chippy" or a goldfinch ride down the dandelion stalk that is carrying its frail globe of down high above the grass. You are looking out over the lawn when you see one of these silver balls suddenly go down. A chippy or a goldfinch has thrown itself upon the stalk and borne it to the ground for the seed.

The dandelion seeds are about the first that ripen, and the seed-eating birds are hard put for food at this time. Hence these globes are a godsend to them. Not long before I had seen the goldfinches and the purple finches pecking to pieces the button-balls of the sycamore for the seeds they held, put up so compactly.

In May the squirrels are hard put also. It is at this season that the chipmunk pulls up the corn, and that the red squirrel robs the birds' nests of both eggs and young. Their last year's stores of nuts and grains are exhausted, and the new crop is not yet formed. I think that the chipmunk has learned that there is something for him also in the dandelion seed, but I doubt whether the red squirrel has.

The latter has found out that there is something for him in the seeds of the elm-tree, which usually get fully developed in May. The elm affords short commons, but it is better than nothing. The chaff is big and the grain small, but probably sweet.

IN FIELD AND WOOD

Morning, noon, and night I see the squirrels feeding in the elms about my cabin, and see the road strewn with the elm-flakes from which the germ in the centre has been cut.

Do they know an elm-tree when they see it, or do they explore all the trees in quest of food? If, again, I belonged to the new school of nature writers, I should say they know an elm as well as you or I, and the date on which the seeds are edible, and that they taught this wood-lore to their young. But, as it is, I will only venture to say that at this season there they are in the topmost branches of the scattered elms, very busy with these green scales, reaching and swaying and hanging by their hind feet, or sitting up in that pretty way with tails over backs and hands deftly submitting the samara to the teeth.

The red squirrel is much more of a "hustler" than is the gray, and will make shift to live where the latter will starve. The red squirrel abides, while the gray seems to go and come with the seasons of scarcity or of plenty. Yet I have seen the gray eating the fruit of the poison-ivy and apparently relishing it. But he rarely disturbs the birds, though of this misdemeanor he is probably not entirely innocent.

Small things, small doings, train our powers of observation. The big things all can see. Who sees the finer, shyer play of wild life that goes on about us? Not all of nature's book is writ large; the fine

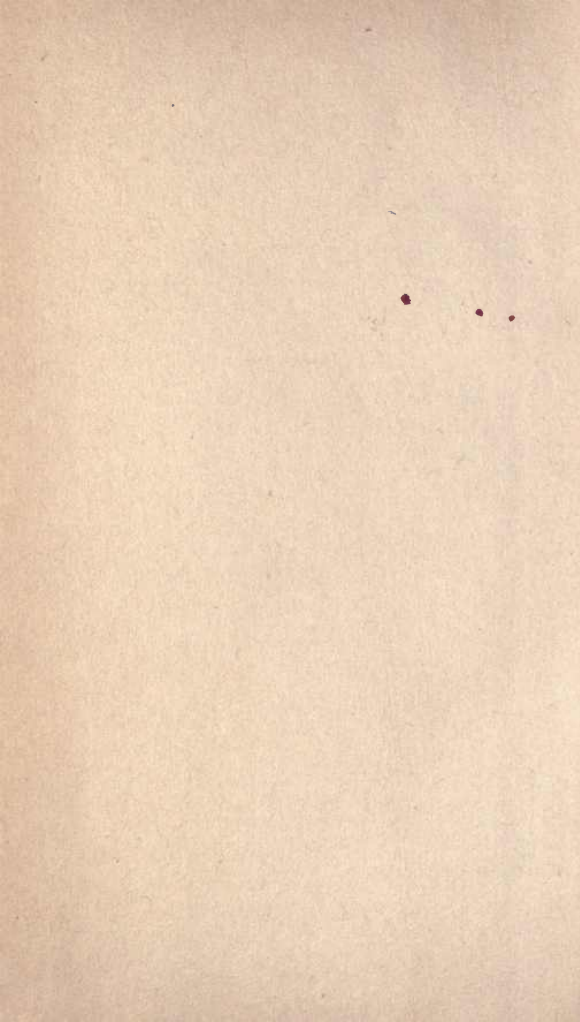
IN FIELD AND WOOD

print is quite as interesting, and it is this that trains the eye.

A schoolgirl wrote me one day that she had seen a hawk carrying a snake in its beak. Now, if she had had a trained eye, she would have seen that the hawk carried the snake in its talons. One of our recent nature writers has made the same mistake in his book. Birds of prey all carry their game in their talons; other birds carry it in their beaks.

A recent magazine writer errs in the other direction when he makes the crow carry in its claws the corn it has pulled up, as the crow is one of the birds that carries everything in its beak.

Emerson says, "The day does not seem wholly profane in which we have given heed to some natural object." It is such little incidents as I have been relating that redeem many of my own days, and give to my pastimes a touch of something I would not willingly miss from them.



UC SOUTHERN REGIONAL LIBRARY FACILITY



AA 000 869 130 5

CENTRAL UNIVERSITY LIBRARY

University of California, San Diego

DATE DUE

Serra I.L.L



CI 39

UCSD Libr.

